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ADDRESS.

THE EVOLUTION OF MEDICINE AND NEW METHODS OF MEDICAL TEACHING.

An address delivered at the ninth annual opening of the Department of Medicine, University of Minnesota.

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The time was, and but recently, when the history of medicine was regarded as the classic introduction to a text book upon medical practice. It was the subject of a regular course of lectures in many institutions of medical learning and, in some, it was even assigned to the guardianship of a distinct chair. With the rapid growth of the medical sciences and with the multiplication of essential branches of instruction, it has been crowded out of the curriculum. Whether wisely or unwisely, in but a very few schools is its study still maintained.

This is a loss certainly, and one to be deplored, if the student of medicine does not acquire that loving reverence for his calling which will lead him to investigate its past; if he has not sufficient taste for the literature of his profession to win him to make its history a voluntary part of his education.

For this history of medicine—a curious and entertaining story, centering itself in three great facts of character—the passion for self-knowledge, the imminence of human need dependent upon self-ignorance, and the sentiment of human devotion in the sight of suffering, this history of medicine is as complete and chromographic a picture of the evolution of intellect as the records of the race afford.

Deeply into its attractive pages I can not venture this evening, but I commend their study to your leisure hours as a recreation from the more arduous duties of your college course. From this history I desire only to draw sufficient evidence of the fact that the medicine of to-day is the still evolving product of an evolutional process through which it has passed and still is passing to the position not merely of an art, but of a true science. And, as the first item of this evidence, observe that medicine, in its development, has always been most quickly responsive to the favorable environment of physical integrity. It has always languished in the atmosphere of physical degradation. The worship of the body has been an inspiration to the study of its conditions. The stalwart races have been the leaders in medical lore. The Arabs, the Greeks, the Moors, the Magyars, the Anglo-Saxons and the Teutons have given the world, at once, its best types of physical perfection and its pioneers in the science of medicine.

Again, observe, that the medicine of each period has been in closest harmony with its intellectual surroundings. It has possessed the general qualities of each phase in the evolution of the human mind. And itself a creature of human necessity, it has, in turn, created for itself in the public mind an atmosphere luminous in direct proportion to the measure of its own light. In an age of barbarism we see medicine as a species of savage sorcery and the popular attitude toward it is one of fear. In an age of superstition medicine is the mystery of the alchemist and the popular attitude toward it is that of wonder. In an age of ecclesiastic authority medicine becomes oracular and the popular attitude toward it is one of absolute credulty. In an age of metaphysics medicine is speculative and the popular attitude toward it is that of dogmatism. In an age of experience and superficial observation medicine is empiric and the popular attitude toward it is that which seeks after a sign and demands a specific. In an age of science medicine slowly becomes scientific and the popular attitude toward it is that of scepticism of its traditional formulæ and inquiry into the reasons for its faith.

Only in the perspective of history can we see these periods outlined sufficiently for the recognition of their essential and separate qualities. Since no lines of demarcation lie between them, since insensibly they shade into one another, since the phases of this evolution have not been of coincident development in all communities and through all levels of society, it is not surprising to find the peculiar characteristics of one period invading the next and often exhibiting a remarkable viability. It is one of the difficulties with which the philosophy of evolution has to deal, that while the fittest ultimately survives, the unfit makes a desperate struggle for existence. Thus we find relics of savagery in the torture of the sick, long outliving the advancement of society into semi-civilization. We find the grave cloths of superstition in long-continued use as the swaddling clothes of authoritative medicine. We are not so far removed ourselves from the speculative era but that "isms" and "pathies" still persist, and that "systems" of human cures or "divine healings" still are born and "have their day and cease to be," proving themselves, in their premature decline, to be but the "broken lights" of scientific truth. We are not yet so far beyond the age of empiricism in medicine, but that we feel the force of the dangerous argument from experience alone and that the multitude of us still prescribe remedies which have a mere reputation of cure; which, in the vulgar tongue, are good for the ills which ail our patients. We are not yet so far advanced into the period of scientific medicine that we trace a cause for every pathologic effect, that we demand to know the physiologic action of every therapeutic agent we employ, that we question our daily practice till it gives a satisfactory reason for every custom that we traditionally follow. So great and so widely distributed has been the mass of the

medical profession necessary to meet the growing needs of society that it has sometimes visibly suffered the consequences of its own inertia, rendering it now conservatively slow in response to a moving impulse and again subject to the excesses of its own momental force.

Nevertheless, scientific medicine is, I repeat, the still evolving product of an evolutional process which has kept proportional pace with the intellectual development of the race.

The evolution of medicine, in common with other subjects of natural development, has not always been a continuous process. Occasionally it has suffered a seeming temporary paralysis, and for almost a generation perhaps no important fact of discovery, no new achievement of practice breaks the dead level along which it drags its indifferent way. But this apparent arrest of progress proves ultimately to be due merely to some obstacle of error which has barred its upward course, before which it pauses until it gathers sufficient energy to roll the barrier from its path or which now and then, perchance, seems to force it back upon itself and start a retrograde movement which leads about in the end to some broader and better way.

And not infrequently does the history of medicine show us that in this, as along other lines of evolutionary force, development has sometimes proceeded by sudden and surprising movements, by the unexpected discovery of some new and widely illuminating truth, by the appearance, as it were, of some massive points of projection in human events or in human life which have given to the few, like Moses, among the mass of men, a glimpse from Pisgah into the land of promise. Some of those events and some of those individuals who form these projection-points in the history of the evolution of medicine have only been justly measured or even tardily recognized by the search light of later development. Born out of time, they were the abortive products of a false generation in the eyes of their contemporaries, but they were the archetypes of a new era in the judgment of the future. Some of them are still unknown, and yet their deeds, which passed unrecognized and are even yet untold, were prophetic of many a modern "new departure." We do not know the names, even, of those obscure professors who conducted a single annual dissection of the human body at Ingolstadt and Heidelberg in the early years of the sixteenth century and who considered it necessary to conduct religious ceremonies after each demonstration before their classes, but it was their spirit which inspired Vesalius, the traveling anatomist of Brussels, and Fallopio of Modena and Eustacchi of Rome, whose discoveries have been christened with and have immortalized their names.

The simple sow-gelder of a German province, who, in 1517, successfully removed the ovaries of his daughter, had little surgical or even veterinary skill to bring to his task, but he deserves recognition, nevertheless, as the nameless author of an operation which has become fashionable, to the weal of many and the woe of some, in these latter days of the nineteenth century.

Small honor in his day was accorded to Felix Platter, who, in 1557, insisted upon the psychic treatment instead of the incarceration of the insane, but he it was who led Pinel, in 1801, to remove the fetters from the demented and to teach that mental disease should be looked upon as a brain lesion. Prophet he was of a deliverance of the defective classes of society which he anticipated by two centuries and a half of time! Bright projection rising out of the gloom of the professional ignorance of his own times into the clear atmosphere of scientific medicine, his name is deserving of the unconscious worship of the thousands of the hopeless and the helpless who have profited by the evangel he proclaimed!

And among the men whose discoveries have made them famous, many there were "of whom the world was not worthy" and who were compelled to wait upon posterity for the recognition they merited. As we look back upon their history it seems to us that "there were giants in those days," but they were giants only by comparison with the mass of their fellows among whom they stood. They would stand shoulder to shoulder among the scientists of to-day. They were simply great projection points upon the medical progress of their time; men who laid down the new lines along which progress was made, or from which new departures could come. They were not only opportune discoverers, but pioneers, who opened the door to future and sometimes very much postponed research.

When Harvey announced the circulation of the blood in 1628, and Malpighi in 1661, discovered the capillary circulation, the facts were viewed as wonder tales by their associates, and not even the discoverers themselves knew what a wonder-world they had opened up to future investigation. When Haller, in the eighteenth century, laid down the doctrine of the functional irritability of the nerve-tissues, his colleagues received the new theory with mingled curiosity and suspicion, but they did not know that by virtue of that demonstration, Haller was destined to be called, a century later, "the Harvey of the nervous mechanism."

When Bichat conducted his brilliant anatomic dissections a hundred years ago, his contemporaries rightly honored him as being the founder of the study of general anatomy, but they did not recognize in him, also, the founder of realism in his profession; they did not see that his scalpel was uncovering facts that were to be used for the overthrow of speculative medicine; they did not read the prophecy of the coming of clinical and laboratory methods in the teaching of the students of to-day in his pregnant words: "Books are merely the memoranda of facts. We have living books before us in the living and the dead."

When Jenner discovered the principle of vaccination he was like a miner who has stumbled upon an unexpected gem, whose practical value he puts to a sufficient test, but neither he nor the men who long debated the value of the "find," nor the thousands who have since adopted the practice of vaccination and have minimized the terrors of smallpox thereby, could foresee that his virus might prove, in generations to come, to be the type of many antitoxins, the suggestion of a possibly large field of serotherapy, the forerunner of the gospel of preventive medicine, the faint promise of the proof of the doctrine of immunity from disease.

Like all other products of mental evolution, medicine has always been responsive to the influence of two forces, the force of attraction from above, incident to the progress of the related sciences, and the force of propulsion from below, incident to the rise of popular intelligence. With the beginning of the

present century these two forces became active to an extraordinary degree. The energy of general scientific development was strongly nascent in the early years of this period. It burst finally into a flame which has been burning with increasing and unparalleled brilliancy as the century advanced. At the same time were maturing those social and political forces which gave impulse to the magic ideas of Pestalozzi, the father of general education. The intelligence which, in earlier ages, had been the heritage of the high-born, began to penetrate downward and leaven the lower strata of society, until it broke forth again, at all levels, in the energy of a popular demand for knowledge. The influence of this general rise of intelligence upon the education of the so-called learned professions—learned, hitherto, only by comparision with the masses—who can measure?

These twin forces found the profession of medicine steeped in the atmosphere of speculation and apparently unstirred by the touch of that spirit of practical realism which had its birth in the labors of Bichat. But, buried as it was in the schools and systems of speculative thought, it had in it the living germs of scientific development which could not but respond to the quickening influences of the times. Not to attempt a general survey of these influences of nineteenth century science, we may just pause to note, by way of illustration, the wide range and varied character of the attractive forces by the aid of which medicine has been lifted to a scientific plane. It needs but to mention the labors of Schwann and Lamarck and Schleiden in microscopic botany; of Berthollet and Pasteur in chemistry; of Darwin, Haeckel and Wallace in the philosophy of development; of Faraday, Ohm, Ampère, Seebeck, Edison and Bell in electricity; of Malus in polarization; of Kirchhoff in spectrum analysis; of Fox Talbot and others in photography; of Dutrochet in physiologic chemistry—it needs but to note the names and works of these to see whence sprung the irresistible influences which are helping to make of medicine a science and which have given birth and opportunity to a generation of medical scientists whose names and number and achievements bid fair to rival in brilliancy those of their fathers in general scientific research.

With the history of these masters in scientific medicine you will become familiar as you profit by the conquests and discoveries they have made. Into this history even of the moderns in medicine it is not a part of my purpose to enter. Suffice it that medicine, through their labors, is a science. It has been difficult for the profession to get away from the speculative tendencies of an earlier day; those hereditary habits still crop out with the persistency of tares among the wheat. It has been difficult to outgrow the love for our traditional position of authority in the community, but the day of the oracular in medicine has gone by; the oracle has been found out and it is works, not words, which can win allegiance from the people of to-day. It has been difficult to abandon the practice of empiricism, to learn that the argument from experience is a most dangerous one in medicine when all its conclusions rest upon a "variable" quantity in the person of the patient. It has been difficult to substitute for these, through the great body of the profession, the exercise of a scientific spirit. Even to-day that spirit moves but feebly in the minds of many. It has not been easy to learn the unaccustomed lesson of putting "the why" before "the therefore," of distrusting the effect until the cause is clear, of doubting "symptoms" and seeking "signs," of making conclusion wait upon investigation; of applying to the human body the instruments of demonstration, rather than the intuitions of the doctor; of accepting the verdict of the thermometer, the stethoscope, the battery, the microscope, the chemic reagent, the bacteriologic test, aye, even the knife of the autopsy—the testimony in a word, of eye and ear and touch, rather than the feelings of the patient or the suppositious effects of an empiric formula. The transition period through which medicine has had to pass has been a slow and tedious phase in its evolution; so large a body, of necessity, moves slowly, but nevertheless it moves. No longer the physician is compelled to walk in the half-light of variable experience or in the gloom of metaphysic theories; no longer he treads softly upon the velvet of popular reverence, woven out of his fancied possession of occult truths; he stands out in the light of a new day; his hypotheses are useful but they must be proven; his theories may outrun his practice but they must be supported by facts; he must be able to give to every man the reasons for his faith. For the medicine of to-day is a science.

But, at first, and for a comparatively long period, considering the rapid movement of its later evolution, medicine was, as I have intimated, the science of the masters. Indeed, this perhaps is to be accounted for by the very rapidity of its progress. Only the master-mind, the mind of exceptional opportunities could keep pace with its league-long steps. Slowly the scientific spirit permeated the profession; but old and young were compelled, at first, if they received it at all, to receive it at the feet of some medical Gamaliel. The masters have slowly multiplied, but, until very recently, facts have been acquired of necessity, at second hand; we have learned the scientific methods of medicine by proxy. We of the generation you follow, grew up in a period of pupilage, during which the few were trained in the seats of scientific learning and went out to preach the gospel to the many. Students heard with the ear, but did not see with the eye, the structural secrets of the human body; if they saw, they did not do the experiments which proved the problems they studied or the operations upon which, in practice, they must soon put untrained hands. Their practical work was confined to the use of the scalpel in a single dissection of "an upper" and "a lower," and to the trial of a few chemic reactions in the test-tube for a few short weeks. Occasionally they listened to a clinic talk at the bedside of a typical case, or viewed from the distant benches the white aprons of the surgeons and the instruments in the hands of assistants at the operating table; or, far less often they gathered, with hungry eyes, about the postmortem table in search of a few living facts to be discovered from the dead. Some of these imperfect methods, for want of better, we still pursue. But the age of the masters in medicine, as in other fields, is passing by. A period of individualism in medicine, as in everything else, is upon us. There are not fewer intellectual giants than of old, but the medicine of to-day demands that all its members shall be of larger mold. The many are growing to the stature of the few. Science is becoming more available. Its instruments are more accessible. Its methods are easier of attainment. Its results are more easily measured by improved means. Its adaptations to

daily practice are more numerous and indispensable. Personal practical training is more necessary than of old. Each must do in the medical science of the future, to a very great degree, what any other has done. It is not enough, students in medicine of to-day, that you shall see through others' eyes, you must also see with your own; it is not enough that demonstrations shall be made and tests done for you, you must do them for yourselves; it is not enough that shall know the names of drugs, you must be able to recognize them; you must not only learn their action, but you should *see* it; you must not only be able to tell the constituents of the body fluids and tissues, but you must be able to analyze them; you must not only learn by ear the structural peculiarities of the tissues, you must be able to differentiate lung and liver and nerve tissue, under the microscope; you must not only be able to count a pulse, you must be able to study its qualities; you must not only know the meaning of heart sounds, you must be able to discover them and read them aright; you must not only be able to take temperature, but you must understand its production, its regulation and its means of loss; you must not only understand the principles of dietetics and food-preparation, you should be able to put them into personal practice; you must not only learn the principles of obstetrics, but you must practice them individually under the guidance of your teachers; you must not only witness operations, you must *do* them on the patient or on the cadaver; you must not not only know the peculiarities of pathologic products, you must be able to make their differential diagnosis under the glass; you must not only know the names of disease-germs, you must be able to recognize their forms; you must see them not only in the persons of their victims, you must rear them in the culture-tube; you must not only master the details of physical diagnosis, you must be able to apply them to disease at the bedside or in the clinic. The opportunity to accomplish these things is enlarging with every passing year. It is the heritage which the masters of the past have bequeathed to the students of the present.

Ladies and Gentlemen: I have heard these things called the adornments of medical teaching. A student informed me but a few days ago that her preceptor had advised her that these accessories were "nice but not necessary." They *are* embellishments, it is true, of the medical practice of fifteen or twenty years ago, but they constitute the warp and woof of the scientific medicine of to-day. For the attainment of this ideal education, it is necessary for the teacher to come as closely as possible into contact with the individual student. The didactic instruction of large classes is a means of time-saving, but for recitations and reviews, for laboratory exercises, for demonstrations, for purposes of bedside and clinic diagnosis, for obstetric attendance, for the witness or the performance of operations, in short, for all forms of practical work, these classes should be divided into small sections. Upon the adoption of such a recitation system and upon the initiation of such section work in several clinic branches this college is to be congratulated. Its fuller extension to the entire laboratory and clinic system and even to the surgical operating room is to be desired. It is possible for a class of ten or fifteen students to witness an operation with profit, but the hours spent by large crowds of students in a surgical amphitheater are largely wasted and could be spent by the majority of students more profitably over a text-book descriptive of the operation they are seeking to witness. A multiplication of laboratory assistants and clinic instructors is involved in this plea for a more elaborate system of sectional work; it means a larger equipment and a larger expenditure of material, but its adoption is in the path of progress in our professional schools. As a step in the same satisfactory direction we welcome the partial abandonment of the final examination system and the substitution for it of oral recitations throughout the term and at the close of the college year.

In a word, medical education is to be conducted, so far as possible, in the individual rather than in the mass. It is to be less didactic and more practical. It is to be less in the lecture room and more in the laboratory, in the hospital, in the dispensary and in the clinic. Leaders in medical science, teachers in medical thought there must always be, but each man and woman who essays to study medicine must be a master of his or her profession. A new relationship exists between the leader and his followers, between the teacher and the taught, a relationship of companionship. History is repeating itself in a return to the more conversational methods of the Socratic system. The spirit of mastery which put into the mouth of the teacher that voice of dogmatic authority which became the old prophets of tradition, "Thus said the Lord," is passing away and in its place we hear the voice of more philosophic, more reasonable invitation "Come now and let us reason together." To such a companionship of science, to such an intimate association of research, to such a leadership upon the part of the teacher and to such a following upon the part of the pupil, to the immediate possession of a place, at the very outset of your college career, in the profession of scientific medicine, on behalf of my colleagues, I welcome you. Personally, I do not care to what school of medicine you belong. You may attach yourselves to any or to all schools; you will be safe, and your future patients will be safe, under any banner, if only you are scientists in medicine. If you are not, it matters nothing to what school you claim allegiance, you will be an eventual failure. If you have come here prepared to work with us and for us, as well as for yourselves, determined to make yourselves, not merely practitioners of medicine but medical scientists, I extend to you, in the name of this University, the right hand of scientific fellowship. If one of you has come here to purchase a diploma and to gain it by the shortest and easiest route to its attainment, I want to bid you, in the name of medical science, to find a less exacting and more lucrative calling; or, if you must seek it upon this commercial basis, to go where diplomas are for sale.

But, believing as I do, in the sincerity with which you seek admission to this honorable and scientific profession, let me ask you to begin your career with a clear recognition, not only of the demands which it will put upon you at the end of your college course, but also of the demands which it puts upon you, as men and women, as physicians in the making, now. If you are to be a medical scientist you must be equipped to become one. If you are to be a master among men you must have a due preparation for the mastery of your science. A pyramid can not be reared upon the dimensions of its apex. A new education in medicine is before you. A new standard of requirements measures you. If you are to survive in the

fierce struggle which awaits the competitors of to-day in this calling of ours, you must be fit to survive. If you are not, that struggle will surely crowd the unfit eventually to the wall. The success of our sowing will depend upon the quality of the soil you offer to the seed. The character of the harvest you yield, will reflect upon the prior preparation of the brain soil you bring to the seeder. You will join with me, I know, in congratulating this college and the university to which it belongs, that it has already planned to safeguard, still further than it now does, these portals to the profession by demanding of its matriculants a higher measure of preliminary culture than they have been required to possess in the past. The higher evolution of the science of medicine must depend upon the quality of the men and women who gather in its institutions of learning and graduate from their halls. The medical science of the future will be the product of the labors of the profession, not merely among its masters, but in its mass.

ORIGINAL ARTICLES.

REPORT OF ONE HUNDRED CASES OF EXTRACTION OF HARD CATARACT.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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CHICAGO, ILL.

It is not unusual for a surgeon, whether East or West, at home or abroad, to consider his special method of extraction of cataract superior to that of any other. Certainly, when one's cases are somewhat limited, it is infinitely better to become perfectly familiar with a special method and adhere to it as closely as possible, and whenever changes are made in order to accomplish some definite object, they should be gradual. The operation to be chosen should be the simplest and easiest of execution.

The loss of an eye means much to a patient, whether he be rich or poor. Relatively speaking, it is as unfortunate for an oculist to lose an eye as for a surgeon to lose a life. From Daniel's time to the present it has ever been sought to simplify the operation. I may be considered too conservative, but the results I have obtained will, I am sure, compare favorably with those of any other method, and I think that in the future they will be better than in the past, for the simple reason that "practice and care make perfect."

When there is no complication, that is, no disease of the eye aside from the cataract, and when the patient is reasonably tractable, every operation ought to be a success. A number of years ago I reported (in the *Chicago Medical Ex.*) Von Jager's method of operating, which impressed me most favorably. Many of you can recall the grace and ease with which he operated; seated, after the manner of Daniel, on a stool directly in front of, and somewhat higher than the patient, who faced a large window, he considered it play to remove cataracts. His methods seemed to me ideal. The first twenty-five cases operated upon, I attempted to follow them in most respects. I used his concavo-convex knives, and cystitome, but instead of kneeling, I found it easier to stand behind the patient, who either lay upon a table near or sat in a chair facing a window. A single and simple obstacle caused me to substitute Von Graefe's for Von Jager's knives. However simple it may seem, it was almost impossible to get Jager's knives sharpened in this country. After trying a number of instrument makers in Chicago and New York, I finally became discouraged and wholly discontinued their use. No knife, in my experience, makes so clean and even an incision as Von Jager's when in perfect condition, and no wound heals so quickly.

The cases here reported were charity patients. Preliminary iridectomy was done in most of the cases; in those where the cataract was fully ripe and the patients came from a distance, the extraction was done within a week or ten days after the preliminary operation. When the cataract was *not* fully ripe, or the patient lived near, a longer interval was allowed between the two operations. Usually only a small portion of the iris was excised, and as it was always under the upper lid, there was no deformity, nor was there, after the lapse of a few weeks, any complaint of dazzling or glaring light. The subsequent appearance of the eye was that of a very moderate coloboma. But should some deformity exist, what is that compared to useful vision? Truly, more time is required of both operator and patient, but what is time to the doctor when an eye is at stake, or to the patient who may have groped in darkness for years? Then, too, by a preliminary iridectomy at least two important questions may be solved—how the patient, and how the eye is going to behave. One is warranted in stating that the first operation will be the more severe, and consequently if the patient is tractable and quiet during the first, there is little doubt that he will be equally so during the second. If there is any predisposition to conjunctivitis or inflammation of any form, the preliminary iridectomy and subsequent treatment will most probably develop it, in which case the extraction would be deferred until the disease was completely cured. Patients were not operated upon until they became somewhat familiar with the surroundings, that is, one or two days after their admission. The preparatory treatment consisted in giving a slight mercurial laxative and bath the day before the operation, and thoroughly washing the head. The immediate treatment consisted in irritating the cul-de-sac with a solution of mercury bichlorid, 1 to 5,000, and then with a saturated solution of boric acid, followed by the instillation of a few drops of a 4 per cent. solution of cocain every three or four minutes until the anesthesia of the cornea was complete. As a rule, but three instruments were used—fixation forceps, knife and cystitome. An assistant lightly raised the upper lid while the corneal section was being made, which usually included the upper two-fifths, and was made in the cornea at the sclero-corneal junction. In cases where the lens was very large and hard the section was made even larger, including nearly one-half of the cornea, as was originally advised. I am sure that a small section is a most serious mistake, and probably causes more complications and the loss of more eyes than all others combined. The capsule was uniformly opened in the periphery after Knapp's method, except in those cases of hypermature cataract, and where the capsule appeared tough or showed calcareous deposits, when the lens was removed with the capsule by means of Foster's capsule forceps. It is to be regretted that it is not always possible to determine in advance when a lens can be removed in its capsule, as the result is so much better than when the capsule is incised and

NO.	NAME.	AGE.	CATARACT.	CONDITION.	OPERATION.	VISION.	REMARKS.
1	Grabb, J. . .	58	Senile, bilateral, 20 years.	Mature, perception and projection good	Left ext. 1 mo. after irid. . .	20-70	Iritis followed irid., which necessitated postponement of extraction 1 month.
2—3	Ferindall, A.S.	63	Senile, bilateral .	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	L. 20-50, R. 20-20 .	
4—5	Goldburg, N .	69	Senile, right eye..	Mature, P. & P. good.	Ext. 12 days after irid. . . .	L. 20-50, R. 20-80 .	
6	Brook, H. . .	73	Senile	Mature, P. & P. good.	Left ext. 10 days after irid. .	20-20	
7—8	Goodaker, L .	60	Senile, 6 years . .	Mature, P. & P. good.	Right ext. 7 weeks after irid., left ext. 2 weeks after irid..	20-30, 20-40 . . .	
9	Keenan, J. . .	53	Senile, double . .	Right mature, P. & P. poor.	Ext. 2 weeks after irid. . . .	. . . . .	Floating bodies, vitreous.
10—11	Key, S.	74	Senile, double, 10 years.	P. & P. good	Left ext. 10 days after irid., right ext. 1 mo. after irid. .	20-200, 20-100 . . .	
12—13	Benson, A. . .	77	Senile, double, 7 years.	P. & P. good	Left ext. 11 days after irid., right ext. 1 mo. after irid .	20-40, 20-40	
14—15	Peterson, C. .	65	Senile	Right, calcareous corneal opacities, left mature 3 years, chr. conj. dacryocystitis left.	Right ext. 1 week after irid. left ext. 2 weeks after irid.	R. no improvement, L. 20-200 .	Six weeks later returned for discission left eye. Panophthal. & phthisis bulbi.
16	Bergeron, E. .	43	Senile, double . .	Mature, P. & P. poor .	Left ext. 10 days after irid. .	Slight improvm't.	Chr. chorioiditis, floating bodies in the vitreous.
17	Hurley, B. . .	46	Senile, left eye, 2 years.	Mature, P. & P. poor .	Ext. 10 days after irid	No improvement.	Chorioidal disease.
18—19	Wymn, M. . .	53	Senile, double, 7 years.	Mature, P. & P. good.	Left ext. 9 days after irid., right 1 mo. after irid. . . .	20-40, 20-60	
20—21	Hanson, C . .	72	Senile, double, 2 years.	Mature, P. & P. good.	Left ext. 2 weeks after irid., right ext. 4 weeks after irid.	20-100, 20-200 . . .	
22	O'Malley, K. .	14	Anterior pyramidal cataract.	Right P. & P. poor . .	Right ext. 2 weeks after irid.	No improvement.	
23	Shodd, C. . . .	47	Senile, double, 2 years.	Mature, P. & P. good.	Left ext. 3 weeks after irid. Fifth day after extraction patient hit her eye; irido-cyclitis followed and eye enucleated.	. . . . .	
24	Cameron, E.C.	42	Senile, left eye, 5 years.	Calcar., P. & P. fair only.	Ext. 18 days after irid	No record	
25	Welch, C . . .	45	Senile, right eye, 3 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. . .	No record	Good recovery.
26	Hoeveh, F . .	65	Senile, left eye, 1 year.	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	No record.	Good recovery.
27—28	Walker, M . .	52	Senile, double, 3 years.	Mature, P. & P. good.	Left ext. 2 weeks after irid., right ext. 3 weeks after irid.	20-40, 20-30 . . .	
29	Johnson, C. . .	58	Senile, double, 3 years.	Mature, P. & P. good.	Left ext. 1 mo. after irid Small incision, hard unyielding lens which required some force to press out, and some vitreous was lost.	. . . . .	Five days after operation was hurt when dressings were being changed. Chronic irido-cyclitis. Eye removed 4 years later.
30	Tindall, M . .	62	Senile, right . . .	Mature, P. & P. only fair.	Ext. 2 weeks after irid. Small incision, some vitreous lost.	. . . . .	Occlusion of pupil.
31—32	Johnson, H. A	63	Senile, double . .	Mature, P. & P. good.	Left ext 2 weeks after irid., right ext. 3 weeks after irid.	20-30, 20-40 . . .	
33	Price, S.	67	Senile, right, 6 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	20-100	
34	Modalna, J. . .	80	Senile, left eye, 10 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. Discission 4 weeks after extraction.	20-60	
35—36	Beigen, Eliz. .	65	Senile, double . .	Mature, P. & P. good.	Left ext. 10 days after irid., right ext. 3 weeks after irid.	L. 20-40, R. 20-50 .	
37	McNamara, H.	59	Senile, right eye, 1 year.	Mature, P. & P. good.	Ext. 5 days after irid.	No record.	Good recovery.
38	Brown, Eliz. .	78	Senile, double, several years.	Mature, P. & P. good.	Left ext. 9 days after irid . .	No record	Good recovery.
39—40	Linkin, L. . .	45	Perception cap. .	Left P. & P. bad, right P. & P. fair.	Irid. both eyes and capsule slightly. Scratched with cystitome. Left ext. 2 wks. after irid., right ext. 1 mo. after irid.	Slight improvm't.	Retinitis pigmentosa.
41—42	Henbrogen, E	65	Senile, double . .	Hyperm. P. & P. poor.	Right ext. 2 weeks after irid., left extraction attempted 3 weeks after irid. on account of liquid vitreous was not successful.	No improvement.	Chorioidal atrophy.
43—44	Jones, S. . . .	44	Senile, double . .	Right mature, P. & P. good; left imm., P & P. good.	Right ext. 14 days after irid., left ext. 6 weeks after irid.	No record	
45	Carmody, M .	58	Senile, right eye, 1 year.	Mature, P. & P. good.	Right ext. 14 days after irid.	20-200	Subsequently needled. No record.
46	Travis, C. G. .	62	Senile, right eye, 4 years.	P. & P. good	Ext. 21 days after irid	No record.	Subsequently needled. No record.
47	Welch, Cath .	43	Senile, right eye .	P. & P. good	Ext. 12 days after irid., followed by much pain and ecchymosis; good recovery.	20-80	Small incision. Wk. necessitated pressure to force out lens. Some vitreous lost.
48	Islander, J. . .	44	Senile, left eye, 3 years.	Mature, P. & P. good.	Ext. 18 days after irid	20-40	
49	Leutfer, A. . .	55	Senile, bilateral .	Left mature, right imm., P. & P. good .	Ext. 21 days after irid. Capsule needled 1 mo. later.	20-30	
50—51	Remney, Eliz.	85	Senile, bilateral, right 10 years, left 3 years.	Mature, P. & P. good.	Left ext. 14 days after irid., right ext. 18 days after irid.	20-80, 20-100. . . .	
52—53	Herverton, T. .	19	Cong. post. polar, bilateral.	P. & P. bad.	Right ext. 10 days after irid., left ext. 3 weeks after irid.	. . . . .	Slightly improved only.
54	Higby, M. B .	78	Senile, bilateral, 1 year.	Mature, P. & P. good.	Ext. 1 mo. after irid	20-80	
55—56	Bell, M	72	Senile, bilateral, 5 years.	Mature, P. & P. good.	Left ext. 10 days after irid., right ext. 3 weeks after irid.	20-80, 20-40	
57—58	Malin, A. E. .	41	Senile, double, 7 years.	Left calc., right mature.	Right ext. 7 days after irid., left cap. cal. and adhered to lens. Removal with cap. forceps.	20-40, 20-40	
59	Call, M. . . .	53	Senile, right eye, left, aphakial.	Mature, P. & P. good.	Ext. 1 week after irid	20-40	Some reaction. Too small incision. Good recovery.
60	Mederlone, U.	58	Senile, double . .	Right mature, left imm., P. & P. good.	Right ext. 2 weeks after irid.	20-100	One week after ext. patient removed dressing at night; reopened wound and caused some prolapse of iris, which was excised. Good recovery.
61	Kemphe, M. .	52	Senile, bilateral, 1 year.	Mature, P. & P. good.	Pterygium removed from right, left ext. 2 weeks after irid.	20-60	
62	Maxwell, K. .	48	Senile, right eye .	Mature, P. & P. good.	Ext. 13 days after irid	20-80	Cap. adh. removed with lens.

NO.	NAME.	AGE.	CATARACT.	CONDITION.	OPERATION.	VISION.	REMARKS.
63–64	Conty, J. . . .	58	Senile, bilateral .	Mature, P. & P. good.	Left ext. 1 week after irid., right ext. 2 weeks after irid.	20-40, 20-40	
65	Karsteen, M..	68	Senile, bilateral, left, 10 years.	Left mature, P. & P. fair only, right imm.	Left ext. 7 weeks after irid .	No record	Considerable reaction followed irid. Cap. adh. lens removed with hook, some vitreous lost. Good rec'ry.
66	Sanders, E. .	78	Senile, double . .	Right mature, left imm.	Right ext. 3 weeks after irid.	20-50	
67	Weinburg, Y..	50	Senile, right eye .	Mature, P. & P. good.	Ext. 2 mos. after irid.	20-30.	
68	Doolittle, B. .	77	Senile left, right aphakial.	Mature, P. & P. good.	Ext. 10 days after irid	20-80	
69	Baum, M.. . .	62	Senile, left eye, 1 year.	Mature, P. & P. good.	Ext. 14 days after irid	20-30	
70–71	Danforth, L. .	72	Senile, bilateral, 5 years.	Mature, P. & P. good.	Left ext. 1 mo. after irid., right ext. 5 weeks after irid.	20-80, 20-100. . . .	Cap. needled 2 mos. after ext. No record.
72	Karstens, M .	68	Senile, right eye, 6 years.	Mature, P. & P. fair only.	Ext. 2 weeks after irid. . . .	. . . . .	Good recovery.
73	Sterling, E.. .	32	Traumatic, 8 years	P. & P. fair only . . .	Ext. 1 week after irid	. . . . .	Good recovery.
74	Salem, S . . .	84	Senile, left eye, 15 years.	Hypermature, P. & P. fair only.	Ext. 11 days after irid	. . . . .	Slow recovery, counts fingers 5 feet.
75	Amsler, M.. . .	47	Senile, bilateral .	Right mature, P. & P. good; left incip.	Right ext. 11 days after irid.	20-40	
76	Underwood, M	61	Senile, double . .	Left mature, right incip.	Ext. 12 days after irid	20-40	
77	Connan, A.. .	65	Senile, left eye, 10 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	20-80	
78–79	Jewell, R. . .	73	Senile, bilateral .	Left mature, P. & P. Right incip.	Left ext. 7 days after irid., right ext. 6 mos. after irid.	20-40, 20-60 . . .	
80–81	Ryerson, E.. ,	58	Senile, bilateral, 1 year.	Mature, P. & P. good.	Left ext. 1 week after irid., right ext. 2 weeks after irid.	20-40, 20-60 . . .	
82–83	McFarland..	50	Senile, bilateral .	Incip., P. & P. good .	Left ext. 1 mo. after irid., right ext. 6 weeks after irid.	20-40, 20-80 . . .	
84	Gralish, K . .	40	Senile, left eye...	Mature, P. & P. good.	Ext. 16 days after irid	20-80	
86	Brew, M. . . .	51	Senile, right eye .	Mature, P. & P. good.	Ext. 10 days after irid. Needled 1 mo. later.	20-40	
87–88	T. M. A.. . . .	46	Hard, 2 years. . .	P. & P. fair only . . .	Left ext. 1 week after irid., right ext. 2 weeks after irid. Cap. needled 1 mo. after extraction.	20-80, 20-60 . . .	
89	Appel, L. . . .	65	Senile, double . .	Left mature, right incip., P. & P. good.	Left ext. 1 week after irid. Cap. needled 1 mo. after extraction.	20-30	
90	Jager, J. . . .	49	Senile, left eye...	Mature, P. & P. good, right aphakial 3 yrs.	Left ext. 1 week after irid. .	20-40	
91–92	Hans, Jos. . .	80	Senile, bilateral .	Bilateral mature, P. & P.	Left ext. 1 week after irid., right ext. 3 weeks after irid.	20-200, 20-100 . . .	
93–94	Karsten, C . .	62	Senile, bilateral .	Bilateral mature, P. & P. good.	Left ext. 2 weeks after irid., right ext 4 weeks after irid.	20-80, 20-80 . . .	
95	Conners. . . .	66	Senile, right eye .	Mature, P. & P. good.	Ext. 1 week after irid	20-60	
96	Sweany, S. . .	64	Senile, bilateral .	Mature, P. & P. good.	Right ext. 1 week after irid.	20-40	
97	Meinen, B. . .	64	Senile, right eye .	Mature, P. & P. good.	Ext. 1 mo. after irid	20-80.	
98	Steele, A.. . .	76	Senile, right eye .	Mature, P. & P. good.	Ext. 12 days after irid	20-60	
99	McMaher, M.	65	Senile, bilateral .	Mature, P. & P. good.	Right ext. 10 days after irid.	20-100	Slight amount vitreous lost. Slow recovery.
100	Buckley, J.. .	65	Senile, right eye .	Mature, P. & P. good.	Ext. 14 days after irid	20-60	

the lens only extracted. After the completion of the corneal incision, the fixation forceps are removed and the further aid of an assistant is hardly necessary. Slight pressure is made upon the peripheral lips of the wound, then, in many cases, the natural contraction of the lower lid will expel the lens; but should it not, gentle counter-pressure by means of the thumb applied upon the lid will be amply sufficient. The eye is then thoroughly washed with a warm saturated solution of boric acid, and should there be any lens matter remaining, it is generally coaxed out in the same manner. A small pledget of lint or cotton is saturated with the boric solution and laid upon the eye, over which absorbent cotton is placed, just sufficient to keep the lids well closed, and feel comfortable to the patient. After the gauze or woolen bandage is applied, the patient is allowed to walk to his room, and is put immediately to bed, where under ordinary circumstances he remains for twenty-four, or preferably forty-eight hours. The room is not darkened, but bright or glaring light excluded. Should the dressing of the eye be uncomfortable, it is changed and applied more lightly. Eighteen or twenty hours after the operation the bandage is removed, the dressing carefully inspected, and should there be no unfavorable indications the eye, unopened, is well bathed with the saturated boric or bichlorid solution, and a few drops of a 1 per cent. solution of atropia is dropped into the inner canthus of the eye. Should there be no complications the eye is similarly dressed every twenty-four hours until the third or fourth day, when the bandage is removed and a single muslin strip laid over the eye for a day or two, when a shade is substituted and worn as long as the light is unpleasant. The average length of time in the hospital was one month, which may seem rather long, but as many lived at a distance, it was deemed expedient to keep them as long as possible, in order to perform discission should it be necessary; this was done in about 25 per cent. of the cases. Patients were not confined to bed longer than twenty-four hours if they wished to sit up, nor to their rooms more than three or four days. It was, however, generally found that patients recovered more rapidly if kept reasonably quiet the first few days or week. Patients living in the city were frequently discharged ten days or two weeks after the operation.

Discission, which was usually done with Knapp's needle knife, was performed usually from three to six weeks after the extraction, and uniformly improved vision.

I would especially desire to call attention to the unfavorable cases, as the consideration of such is sometimes more profitable than that of the successful ones.

Case 15.—Mrs. C. Peterson, age 65, senile cataract, blind ten years, chronic conjunctivitis of both eyes for several years and dacryocystitis of the left for three or four years; general condition feeble. She was placed at once upon tonics and a generous diet. The conjunctivitis was treated with astringents—mild sulphates and weak solution of nitrate of silver—the dacryocystitis by Bowman's method and injections of solution of bichlorid of mercury, 1 to 4,000, and bougies of iodoform and zinc. After a month of such treatment the general and local conditions fully warranted the cataract operation, which was performed on each eye, one week intervening between the operations. She made a good recovery without an untoward symptom—V.=20-100 in left; right, in which there were corneal

opacities and calcareous lens, no improvement. Two weeks after the last extraction she was allowed to go to her home, with the understanding that she would return in a month or six weeks. On her return there was a slight discharge as a result of the chronic dacryocystitis, but so slight I did not think it possible, after a thorough irrigation of the sac and duct with the bichlorid solution, to cause any trouble; consequently I did the operation of discission on left eye, hoping to improve her vision. The operation was performed in the usual manner and gave every promise of success, yet within twenty-four hours distinct symptoms of panophthalmitis appeared, and the patient lost her eye and almost her life. Subsequently the operator was confronted with a suit for damages. Previously I had considered the operation of discission so simple and free from accidents as hardly to give it a thought.

Case 29.—Mrs. M. Johnson, age 64, senile cataract both eyes, left fully, right partially mature. After preliminary iridectomy of the left, the lens was easily extracted without any complication, and until the fifth day there was not an unfavorable indication. On that day she complained of considerable pain in the eye and temple. On examination the eye was found to be much injected, the anterior chamber very shallow and the wound reopened. In explanation of the greatly changed condition she stated that the resident physician, in changing the dressing the evening before, had in some manner hit the eye, which had immediately caused excruciating pain. Chronic irido cyclitis developed, and as the opposite eye was endangered by sympathetic inflammation, the diseased eye was advised removed.

Case 23.—Shodd C., aged 47, extracted left eye three weeks after iridectomy. Operation normal except incision somewhat small for the hard, unyielding lens, requiring more than the usual pressure to force it out. Five days after the operation the patient struck her own eye. Irido-cyclitis followed and the eye was enucleated one month later. Although the patient distinctly stated that she hit her eye, it is possible that the pressure and consequent injury to the iris at the time of the operation may have been the principal or sole cause or the trouble.

Case 30.—Tindall M., aged 62, senile right eye; motion, perception and projection fair. Extracted two weeks after iridectomy. Lens adherent; removed with hook, some vitreous was lost. Plastic iritis and occlusion of the pupil followed.

Case 60.—M., aged 58. Senile bilateral R. M. One week after operation dressings were removed by patient during the night. The wound reopened and caused some prolapsus, which was excised. Good recovery resulted with fair vision.

I much regret that in my notes of cases more details are not given. When I began to operate I was guided and much influenced by V. Arlt's teaching, that vision was the *one* object, and he said (Knapp's Archives, Vol. x), "Were I to be operated on for cataract I would rely on that method which, on the whole, assures the greatest chances for recovering vision—more or less good vision, and all that sort of thing, is secondary so far as concerns the choice of method." Certainly with the majority of those operated upon and here reported, vision of any kind was the great object. Yet I am confident, if care and time be taken to avoid complications, and the patient is kept under observation for a few weeks to determine whether discission may be necessary or not, good vision can be secured just as easily as moderate. In reviewing the cases, two weeks was the average time intervening between the preliminary iridectomy and the extraction. I have omitted in this calculation those cases where iridectomy was done to hasten the ripening of the cataract. The average time of each patient in hospital was about one month. Many were kept longer than absolutely necessary, as they came from a distance and it was considered best to keep them long enough to fit them with glasses, and also to perform discission, should it be advisable. A few living in the city were discharged from the hospital from two to three weeks after the extraction. The average age was 60, varying from 14, pyramidal cataract, to 85, of which latter there were several. The cases 14, 23, 29 and 30, four in all, were failures, and failures much to be regretted, as they were all preventable. Cases 9, 15, 16, 17, 22, 24, 40, 39, 41, 42, 52 and 53, total 12, were complicated with choroidal trouble or corneal opacities, and little hope was given that vision would be improved, so that in estimating the number of those who were benefited by operation, these should be excluded. In brief, we have in the hundred cases four complete failures. One only counts fingers at five feet, partial failure, which would be five failures, 5 per cent. Twelve complicated cases, abnormal condition, 12 per cent. Twelve cases in which there was no record as to vision, but noted that they made a good recovery, which would mean 20-200 or better, so that we have:

12	cases,	1-10 or better	13 per cent.
4	"	1-10.	4 " "
9	"	1-5.	11 " "
16	"	1-4 or better	19 " "
12	"	1-3 or better	14 " "
21	"	1-2.	24 " "
7	"	2-3.	8 " "
2	"	1-1.	2 " "

I desire to express thanks to Dr. L. Weber, resident physician, who kindly aided me in arranging the above cases.

DISCUSSION.

Dr. W. T. MONTGOMERY, Chicago.—It is only in very exceptional cases that I make a preliminary iridectomy. I do not perform extraction under two weeks from the time of the first operation. If the conjunctiva is healthy I do not use the bi-chlorid solution, 1-5000, because it so frequently produces decided irritation. Instead I irrigate freely with boric acid solution before and after operation. I prefer the speculum to any assistant to keep the lids separated during an operation. I do not make the corneal section so large as recommended by Dr. Ware, but it is better to make it too large than too small. If the patient has useful vision in one eye I only bandage the eye operated upon and allow the patient to sit or recline in a darkened room. If the eye is comfortable the first dressing is not disturbed until the second or third day and as a rule I substitute a shade for the bandage on the sixth day.

Dr. A. C. CORR, Carlinville, Ill.—I am of opinion that in all operations in which an iridectomy is to be made that it should be preliminary from the fact that it is not complicated with the dangers of the manipulation of the extraction, and on the other hand when the extraction is made it is not complicated with the dangers of an iridectomy. I regard the preliminary iridectomy as very important and necessary to an ideal operation. The teachings by professors and the books is almost all against the preliminary iridectomy, and it should not be so.

Dr. J. A. WHITE, Richmond.—If you are working only to secure to the patient every possible chance of vision, it is advisable to do a preliminary iridectomy in every case. It is not always practicable for the reason that the longer you extend the time of treatment the more trouble you will have from the patient, who wants to get through the case as soon as possible. You should have as large a section as possible so as to have an easy extraction of the lens. It should be as large as can be, even to the extent of one-half of the cornea. I always make mine two-fifths of the cornea, keeping entirely within the corneal tissues. As to antiseptics, my method is to prepare the patient the day before I intend to operate. I first have the face thoroughly washed with soap and water, then sterilize the skin about the eye with solution of bichlorid 1-2000. It is impossible to thoroughly sterilize the conjunctiva, but we are not afraid of producing irritation with bichlorid. After the washing we introduce into the conjunctival sac a 1-3000 salve of bichlorid, and then sealing up the eye leave it until the next day. If there is any secretion present when the eye is opened we do not operate. During the operation we use the instru-

ments sterilized with bi-chlorid. It has been my experience occasionally to remove the whole lens with the forceps on catching the capsule. If I find any difficulty in delivering the lens I give the patient the benefit of an iridectomy so as to make the delivery free and easy. I have found the cortex remaining was not so dangerous as supposed. It is nearly always absorbed and I would rather take the chances of a secondary operation than to prolong the time and subject the patient to extra danger. Since using the forceps I have had better results and have done fewer secondary operations. I do not approve of permitting the patient to walk about.

Dr. H. B. YOUNG, Burlington, Iowa—As a result of iridectomy, either preliminary or at the extraction, is it not possible that the stump of the iris is more often incarcerated in the wound than we commonly suppose? As one of the complications of cataract extraction I would ask for information as to the occurrence of acute glaucoma. In one of my cases where atropia was used as suggested by Noyes, acute pain appeared twelve hours later with the usual symptoms of acute glaucoma. Instillations of eserin were used and a good recovery made.

Dr. A. W. STERLING, Atlanta—I have had under my care one case of glaucoma secondary to cataract extraction. One dozen or more of these cases recorded have been investigated by Nordenson, and he found the causes to be chiefly prolapse of the capsule or the vitreous. When they appear suddenly they are usually due to the healing in the wound of a bit of capsule which blocks the flow of the fluid. The case I had was due to secondary needling after extraction. When the needles are pulled out too rapidly a little vitreous may escape with the fluid and, becoming fixed, pulls forward the contents of the eye and blocks the angle.

Dr. G. C. SAVAGE—The ideal operation has not yet been perfected, that is, the extraction of the lens in its capsule without iridectomy. If some man will devise means of separating the lens in its capsule from the suspensory ligament, the operation will be complete. I always commence with the intention of doing a simple extraction, and regret to have to perform the combined operation. I have the things ready, and often have to do the combined operation. I want a large incision to include as much as one-half of the circumference.

Dr. A. W. CALHOUN, Atlanta—I do not know that we have cataract in this country more than in other portions of the world, but we certainly operate more. I have operated upon 1,300 cases within the last twenty years. I formerly commenced with the intention of doing a simple extraction, but I now prefer an iridectomy. I very rarely have occasion to do a secondary operation. I take a great deal of trouble to get out all the cortical substance and usually have a very clear pupil. Previous to the use of bichlorid I thought I was doing very well if I had 95 per cent. of successes, but with its use I rarely have any trouble whatever. I use it in the strength of 1 to 10,000, washing out the sac before, during and after the operation; in fact, keeping the field perfectly flooded with the solution. I see my patients twice a day for the first week. I keep them in their rooms longer than is the custom. I have lost probably not more than one case in the last two or three hundred. I do not always get 20 20 vision, but 20-200 is very good vision and enables the individual to do ordinary work. I used to think that a little loss of vitreous was a serious thing, but I have found that a slight loss amounts to nothing. The only danger is that when once started, you can not predict where it will end. In some cases I have imagined that it proved of service, for it broke up the posterior capsule and left a window there. I always endeavor to avoid such a thing. I use a very weak solution of cocain, ½ per cent., and it is just as satisfactory as the 4 per cent. solution.

Dr. R. L. RANDOLPH, Baltimore—It has been shown that the weak solutions of bichlorid have no effect upon the organisms. The action of these solutions is not killing but getting rid of them mechanically, and we will have just as good results, if we boil the solution, whether it is bichlorid, salt solution or plain water. I boil my instruments, except the knife, which is kept in absolute alcohol until ready for use, then washed in boiling water. A solution strong enough to kill germs will produce irritation. I have operated on 160 or more cases, and my best results as regards vision have been those in which preliminary iridectomy was performed.

A NEW KNIFE FOR SECONDARY CATARACT.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY A. J. ERWIN, M.D.
MANSFIELD, OHIO.

In presenting a new instrument to the AMERICAN MEDICAL ASSOCIATION it becomes necessary to show that such an invention is needed to fill a want. It seems to me that heretofore we have not had an implement for the convenient removal of the opaque capsule, or so-called secondary cataract. Often, on account of its flaccidity or toughness, the ordinary needling of the capsule will not clear the pupil. We are frequently obliged to open the eye and remove the capsule with the forceps. The knife that I herewith present is about the size of the smallest discission needle. It is curved about 50 degrees on both the edge and the flat, with both edges and point sharp. Its action is somewhat corkscrew-like. By a rotary motion of this knife one can tear the capsule into fragments if necessary, or draw it to the corneal margin and extract it. I have found it a very useful instrument. It was made for me by George Tiemann & Co., New York.

ACUTE NON-SYPHILITIC CHOROIDITIS IN YOUNG ADULTS.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY HIRAM WOODS, JR., M.D.
ASSOCIATE PROFESSOR OF EYE AND EAR DISEASES, UNIVERSITY OF MARYLAND, BALTIMORE, MD.

It has frequently been noted that of all eye structures the uvea is most apt to show systematic disease. The iritis, cyclitis and choroiditis of syphilis and rheumatism are matters of daily observation. The liability of the iris to become inflamed, in gouty subjects, after such slight trauma as simple cataract extraction, makes one chary in pressing operation upon such persons. The choroid is the favorite place for ocular tuberculosis. Metastatic infection from sepsis, typhus, typhoid and, more rarely, remittent fevers, from cerebro-spinal meningitis, most commonly appear in the choroid. Now and then one reads of functional disturbances in the iris or ciliary structures, attributed to digestive or sexual disorders. Again, it is from primary choroidal growths that metastasis is most apt to result. When one examines treatises upon diseases of the eye for the etiology of choroiditis, he finds comparatively little. As a rule, after a more or less thorough description of the appearance of the exudate, clouding of the vitreous, floating opacities, absorption of inflammatory material with restoration of function, or gradual develop-

ment of atrophic areas with heaped-up pigment, producing scotomata, one reads: "The most common cause is syphilis, inherited or acquired. Sometimes no definite cause can be assigned. Exceptionally, choroiditis is associated with malnutrition, scrofula, chlorosis and anemia." This is copied from the recent edition of Juler's book and is a fair index of others. That routine office examinations reveal old choroiditis not due, so far as can be discovered, to any of the commonly accepted causes, can not, I think, be denied. Exclusion of syphilis, inherited or acquired, is not always easy. Lesions, characteristic of the disease, excite doubt concerning the history rather than stimulate search for less common or doubtful causes. All of the cases narrated below are open to this objection. Careful inquiry was made; and the presence of an eye disease, thought to be usually due to syphilis, but not essentially characteristic of it, was the only reason for suspecting its presence.

During the past eighteen months I have seen in private practice five cases in the acute stage of the first attack, and two undergoing relapses of old choroiditis. Five were in females, two in males. Their clinical history is appended:

RELAPSING CASES.

Case 1.—Miss D., 27 years of age, seamstress, was referred to me in February, 1896. For six weeks the right eye had been defective with constant floating clouds. Vision was 10–200. Ophthalmoscopic examination revealed muddy vitreous with floating specks, an area of choroido-retinal exudate, to the temporal side of the fovea, while more externally was a mass of pigment suggestive of a former attack. She had fair health save in one respect, menstruation. Since its commencement at the age of 15, this function had been irregular. Sometimes six or eight weeks would elapse between periods. About Christmas after several days hard work and on the third or fourth of menstruation, she noted the eye symptoms. Improvement has been steady and distant vision on April 24 was 20–40. There is still some vitreous clouding.

Case 2.—Miss E. D., 21. In 1888, when this young lady was in her 13th year, I attended her for left purulent ophthalmia. How the child contracted this disease was difficult to explain, though later her family physician attributed it to infection from a servant, who, he had reason to believe, had gonorrhea at the time. The eye recovered with a small peripheral corneal scar. If there was any choroidal disease, acute or chronic, my ophthalmoscopic examination did not reveal it. In 1892 she consulted me again for asthenopia. Correcting H. As she obtained 20–15 vision in each eye. At this time when she was 16 years old, I found in the upper and inner quadrant of the left eye a patch of choroidal atrophy. The family history was good, the girl's health perfect, and had been since 1888. Menstruation had, in the meantime, been established. Later, in 1892, Miss D. consulted me for "floating specks" and dim vision in the left eye. The vitreous was found slightly cloudy and vision 20–40. This attack had come on suddenly during a menstrual period. She soon recovered. This past winter she has had a similar experience. At neither time was there a fresh exudate; but vitreous clouding and floating opacities were unmistakable.

PRIMARY CASES.

Case 3.—Miss G., 21 years old, a robust, athletic young lady, called April 14. On March 14, she suddenly lost the sight of the left eye. Vision was 20–200 on April 14. The vitreous was cloudy, and examination difficult. I was able, however, to see the retinal vessels, hidden in part of their course, with a grayish yellow choroido-retinal exudate at the temporal side of the fovea. There was no hemorrhage. I learned that on the morning of March 14 menstruation had appeared. Miss G. had never remained indoors at such times and took an unusual amount of exercise that day. During that evening she had a severe headache, and found that her sickness had ceased. Shortly afterward the dimness of vision was noticed. Menstruation reappeared the following day, and she had expected the eye would soon get better. To-day (April 29) vision is 20–100.

Case 4.—I am somewhat doubtful about the diagnosis of this case, but its history, and the ophthalmoscopic picture justify its narration.

A lady, 22 years of age, apparently in perfect health, was brought to me in March, for an explanation of blurred vision in the right eye. Visual acuity was 20–50 right, 20–15 left, the former unimproved by glasses. A week previous, toward the close of menstruation, this had been noticed. Slight haziness of the vitreous with a blurred appearance of the fovea, a small deep red, sub retinal spot; apparently a hemorrhage. It slowly disappeared, and in three weeks vision was 20–20.

Case 5.—Mr. E., 25 years of age, lost sight in right eye suddenly in September, 1894. Vision was barely perception of the moving hand. Densely clouded vitreous, blurred retinal vessels and an area of foveal choroido-retinal exudation were easily seen. The case has resulted in a central atrophy with scotoma. Eccentric vision now is 20–70. Mr. E. is an active man. He is entirely free from any of the recognized causes of choroiditis. The only associated condition I could discover was a tapeworm. He said that several ineffectual attempts had been made to dislodge this tenant. Except at these repeated therapeutic onslaughts, his intestinal possession had not worried him. He has, I believe, recently gotten rid of it.

Case 6.—Mr. R., 33 years of age, was sent me February, 1896. For two weeks right vision was blurred. It was 20–50. A choroido-retinal exudate in the upper and inner quadrant with hazy vitreous explain his symptoms. This is slowly undergoing absorption. On April 30, distant vision was 20–30. Mr. R. is in active business involving large responsibilities. He enjoys good health, but has recently suffered from what he terms "nervous dyspepsia," occasionally washing out the stomach. I could find no other disturbance. Tuberculosis and syphilis seemed positively excluded.

Case 7.—J. J., 27 years of age, was sent to me in September, 1895. Vision in the right eye had become suddenly blurred ten days previously. Mr. J. was an engraver by profession and in robust health. In the lower nasal quadrant there was a yellowish white exudate, associated with muddy vitreous and floating opacities. Vision was 20–60. A scotoma was easily located in upper temporal field. This has remained, corresponding with the atrophy in lower nasal fundus. Central vision now is 20–20.

Treatment in all of these cases followed the usual lines. Purgation and diaphoresis in the early stage, with leeches in one: Case 5. Later tonic, alterative remedies were administered, as iron, corrosive chlorid.

There is a more or less general recognition of functional relation between the eye and the female pelvic organs. That affections of one can influence the functions of the other is seen in the eye symptoms, sometimes occurring at the menopause, and less frequently at menstruation. Some gynecologists recognize the need of correcting "eyestrain" when refraction error exists, if certain forms of uterine disease are to be cured. Dr. Moseley has recently called my attention to a paper by Dr. Matthew D. Mann of Buffalo, read at the Baltimore meeting of the American Gynecological Society in 1895, setting forth this necessity. These reflex disturbances, interesting as they are, do not, however, belong to my subject.

Less generally an inflammatory condition of the eye caused by pelvic disease is recognized. The following from Soelberg Wells (p. 329), presents it better than I have found elsewhere.

"An important exciting cause of idiopathic cyclitis, especially of the serous form, is found in disease of the uterus accompanied by disturbance of the menstrual function. DeWecker thinks this is the reason why spontaneous irido-cyclitis occurs with so much greater frequency among women than men. The restoration of the menstrual flow in these cases exerts a beneficial influence upon the ciliary inflammation. Pregnancy often causes relapses in cases of old chronic cyclitis. In girls from 16 to 20 years of age, a mixed form of serous and plastic irido-cyclitis or choroiditis is frequently encountered, almost constantly associated with either amenorrhea or irregular menstruation and chlorosis. This form of inflammation is also not an uncommon complication of the menopause, especially

in those women in whom the climacteric period comes on unusually early."

Trophic changes through reflex nerve influence, metastasis, or a third trouble acting as common cause suggest themselves as possible explanations. Dr. Mann (loc. cit.) speaks of insufficient urinary secretion and lithemia as possible causes of pelvic disease. He traces this not infrequently to intestinal troubles. In all of my cases urinary examination was negative; but considering the liability of the uveal tract to inflammation in gouty or rheumatic subjects, one thinks of the possibility of the same cause producing both eye and pelvic disorder. The frequency with which we find evidences of old choroidal inflammation, of which the patient can often recall nothing, and the identity of the ophthalmoscopic picture resulting in cases we treat, with that found in untreated cases, suggests the question of the value of therapeusis. Vitreous clouding causes visual defect. When this clears, the patient has recovered or been cured just in proportion to the absorption of the exudate, or the distance of the resulting atrophy from the fovea. Syphilitic cases, it is recognized, promise best from a therapeutic standpoint; but even here it is from relapses that we aim to save our patient, rather than from the natural result of the lesion present. In so-called idiopathic cases, if associated troubles of any kind can be found in a considerable number, etiologic relation is suggested. To find and remove this factor, if possible, should be the aim of treatment.

816 Park Avenue.

IDIOPATHIC CHOROIDITIS.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY ADELINE E. PORTMAN, M.D.

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WASHINGTON, D. C.

Idiopathic choroiditis is a subject on which we find, in text-books, almost nothing to aid in diagnosis of the disease which has had so little investigation by the busy oculists of the present time.

As you know, the choroid consists of the vascular parenchyma, an exterior coat of endothelium upon its scleral surface, and the *lamina vitrea*. Upon the latter lies the pigmented epithelium which is assigned to the retina, though it always suffers when the choroid is affected. The blood supply of the choroid is from two groups. The capillary vessels, which lie nearer the inner surface, and the venous to the outer. The chief blood supply is from the short, posterior ciliary arteries. After entering near the optic nerve and piercing the sclerotic they pass into the choroid, then branch, forming the capillary network of the choroid, ending in the indented margin of the *ora serrata*. Long posterior and anterior ciliary arteries send small branches to meet these vessels. The venous blood, collected from the capillaries into the *vena vorticosæ*, leaves the eye through the sclerotic. The parenchyma has an abundant nerve supply from the long and short ciliary nerves and a network of pale nerve fibers in the choroid which accompany the blood vessels and have many ganglionic cells. They end in the capillary layer. From the abundant nerve and blood supply we understand how rapidly an inflammation can extend, and why it must always be considered a grave condition.

It is doubtful if hyperemia of the choroid can be demonstrated or diagnosed by the ophthalmoscope, for in long neglected ametropia uncorrected, and in prolonged eye strain we observe a flannel-red appearance. Idiopathic choroiditis has no subjective symptoms, there being pain only in the purulent forms, or where there is iritic complications. The disturbance of vision is in direct relation to the situation of the lesion and amount of atrophy. In the period of progression all stages, from the first yellowish spot of exudation to complete atrophy, may be seen.

The ophthalmoscopic signs which distinguish choroidal opacities from those of the retina, are that the retinal exudation spots have a more brilliant color, their opacity denser and their contour is defined by very fine radiating striæ, which correspond with the direction of the nerve fibers, the vessels are tortuous and partially disappear under the opacities. The vessels pass freely above choroidal opacities, without change of appearance, the exudations show a dull yellowish reflection, the atrophic spots are brilliant, marbled, bluish, due to the denuded sclerotic. Instead of a dull red ground, large vessels may be manifest as reddish and yellowish-red stripes, forming a lace-work, between which are dark, intervascular spaces, lozenge-shaped, caused by absorption of the pigment and capillary layers. In certain instances this condition is physiologic and is commonly seen in the space downward and inward from the disk. The large vessels of the choroid stroma pass in a sinuous manner across the eye ground, bringing into distinct relief the pigment connective tissue cells of the choroid proper, which lies beneath them. We also find this condition in myopia and in the so-called stretching eye, where hyperopia is becoming myopia in glaucoma, and is at times associated with pigmentary degeneration in retinal diseases. This atrophy of idiopathic choroiditis does not disturb the vision necessarily, at first, to any appreciable extent, though complete loss of visual acuteness is the ultimate result. Usually the gradual diminution of visual power creeps on so insiduously, that the patient only becomes aware of it after it begins to interfere with their usual vocation, and by an attempt to have glasses fitted to improve failing vision. Nettleship gives accounts of what he calls "generalized choroidal disease," in persons who have not had or inherited syphilis, but believes it due to scattered hemorrhages into the choroid, occurring repeatedly at different dates, leading to patches of atrophy with pigmentation, which he has found mostly in young males. Hutchinson claims that a disseminated choroiditis affecting both eyes is found occasionally, as a family disease, independent of syphilis, and connected with diseases of the nervous system. To this class of cases, of nervous origin perhaps, belong the cases found among the overworked, the physically enervated man, the slaves of the everlasting day-book and ledger in large business houses, where long years of close, hard application added to the ever growing demands of a family that brings an ever increasing worry, where little exercise and less fresh air combine to sap the failing strength and low vitality; also that class of overburdened women who have spent their lives in the hardest work, the mothers of large families, who from rapidly repeated pregnancies and overstrained system, in vainly trying to bear the endless burdens their lives impose, have exhausted all reserve of physical and nervous force they may have had and find themselves at the menopause with constitution ruined and

a mental balance trembling on the verge of insanity.

Again, among the old, who have been exceptionally healthy and strong during a long life, find the vision growing strangely dim, in whom there is no cataract, who go from one oculist to another in a vain attempt to get glasses to improve their sight, we find the large patch of choroidal atrophy, usually near or partially including the disk, a condition of old age apparently. But not only in the old and middle-aged do we find this sad enemy, for Magnus in 1886 made a report giving the results of his investigation of sixty-four institutions for total blindness. The number of those affected with idiopathic choroidal disease under 20 years of age in the 1,060 examined was 75, while in the 551 cases of congenital amaurosis were 48 due to the same cause. It also appears frequently in the 2,528 cases reported by Schmidt-Rimpler, Hirshberg, Magnus, Landesberg, Seidelman and Katz, 276 were of idiopathic choroidal disease, showing it to be an enemy of all ages. May it not be possible by a careful investigation into the cases that are met with before much destruction has taken place, to arrest its progress and thus save the few who can be benefited? Let us remember that all choroidal diseases are not specific and should not be treated as such. May not continued attention and watchfulness save the most valuable faculty we have, to some few at least? And though this form of choroiditis may be the result of a dyscrasia, so is trachoma, but that does not make trachoma any less a disease.

DISCUSSION.

Dr. HERBERT HARLAN, Baltimore—I have seen quite a number of cases, and have now one under treatment in a very healthy young woman, who, while there is no suspicion of syphilis, has taken one-sixth of a grain of bichlorid of mercury three times a day for several months, and her vision has improved from light perception to 15-100. A great deal of good can be gained from treatment, but the prognosis must be guarded until the fundus can be made out.

Dr. H. B. YOUNG, Burlington—I have recently seen two cases. One was benefited by potassium iodid, the other was not. My impression was that the origin of the disease was ancestral.

Dr. D. S. REYNOLDS, Louisville—If there is any cause for disseminated choroiditis other than syphilis, I am entirely unacquainted with it.

Dr. B. A. RANDALL, Philadelphia, Pa.—We are generally correct in contrasting clinically the minor conditions of choroidal irritation with those of unmistakable choroiditis that leaves permanent scars, but no absolute pathologic line can be drawn between them.

Dr. A. E. PORTMAN—Many cases have been reported by Drs. Argyle-Robertson, Hutchinson and others, believed by them to have no specific connection. Research, however, in this line can do no harm.

THE OCCURRENCE OF OPTIC NERVE ATROPHY IN GENERAL DISEASE.

BY H. V. WÜRDEMANN, M.D.

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MILWAUKEE, WIS.

Being Report of the Chairman of the Special Committee appointed to report upon "Optic Nerve Atrophy of Obscure Origin" for the Section on Ophthalmology of the American Medical Association, Forty-seventh Annual Meeting, held at Atlanta, Ga., May 5–8, 1896.

The origin of most cases of optic nerve atrophy is certainly obscure. There can be no doubt, when the amblyopia and characteristic disk changes follow traumatism, peripheral disease, or there is positive diagnosis of cerebral disease, or following the continued action of some virus or poison in the system, that is known to affect the optic nerve. The occurrence of optic nerve atrophy in general disease always brings with it doubt as to the causative relation. The statements of patients are unreliable especially as regards nature, duration and severity of preëxisting diseases and an element of doubt is always attached to the relation of such a chronic process as nerve atrophy which may have begun months or years after an apparently well authenticated cause.

The atrophy may involve the whole structure of the optic nerve for its whole length, or may be complete in only a portion; it may effect a part of the nerve fibers, in their whole length or only such a portion as the maculo-papillar bundle. Signs of degeneration may come on so quickly that the disease may be deemed acute; the majority of cases, however, are characterized by slow changes and do not tend to recovery and hence are truly chronic. The latter class shows few signs of inflammation, although I believe, in the beginning, that it may be generally possible to demonstrate inflammatory changes at the disk, in the shape of slight haziness and blurring of the nerve head, especially its edges, and of increase in the size, tortuosity and number of its small blood vessels. A large number of cases follow high grades of inflammatory conditions of the nerve and retina, such as occur in neuro-retinitis and choked disk.

It is difficult to decide whether some cases are due to or simply coincidental with the preceding trauma, local, cerebral, spinal, toxemic or general affection, which may be followed by atrophy of any part of the nerve from the visual centers to the disk, but the result in any case is eventually seen as a wasting away of the nerve elements. The disk loses its normal rosy tinge, the circulation is reduced in amount, in advanced cases is marked by a cupping of the nerve end, especially on the temporal side. In all cases the first symptom is loss of visual acuity followed by more or less concentric contraction of the visual field, with perhaps defects and disturbances of color perception. Where blanching of the macular fibers only appears, as in axial or partial atrophy, central or ring scotomata are seen. The color of the disk may vary from a pure white, as in primary or simple progressive atrophy, to grayish as is seen after neuritis. Bluish or greenish shades commonly appear after spinal lesions and sometimes pigment deposits occur in the nerve. Glaucomatous disease results in atrophy of the fibers and here the discoloration is frequently marked.

In addition to considering optic nerve atrophy with constitutional and infectious diseases I shall discuss affections of the digestive, respiratory, circulatory, urinary and sexual organs with diseases of the skin and those cases which are supposed to be congenital and those which for want of a sufficient apparent cause will be termed idiopathic.

1. *Diseases of the Digestive Organs.*—Disordered digestion and assimilation with attendant defective nutrition are factors in many general and local diseases. Infectious diseases may leave in their train such conditions of the digestive tract, which act apart from their toxins in producing effects on the trophic centers and nerves. I have observed simple white atrophy for which I could give no other cause than chronic catarrhal gastritis and the uric acid diathesis. Blindness and subsequent atrophy has been noticed after profuse diarrhea. Intestinal hemorrhage has

been followed by white atrophy. In retinitis pigmentosa and hemeralopia secondary atrophy of the optic nerve follows. This condition has been ascribed to co-incident liver disease, but in no case has there been a sufficient warrant for ascription of a definite connection between the two. It is certainly more probable that hereditary syphilis is the cause of these conditions.

2. *Diseases of the Sexual Organs.*—Excessive sexual indulgence and masturbation have been reported as causes of this change in the optic nerve. Amenorrhea and sudden suppression of the menses with vicarious hemorrhage into the nerve sheath is a probable cause of several personally observed and other reported cases. The disturbances attending the menopause in a subject inclined to arterio-sclerosis, have developed the condition. Pregnancy may develop a preëxisting tendency to eye or general disease. Although uremic blindness is usually temporary, repeated attacks occurring in the same or successive pregnancies have been known to result in permanent atrophy. Nephritis of pregnancy with accompanying, so called albuminuric retinitis has been followed by the same result. Parturition and childbed offer peripheral causes, such as hemorrhage into the nerve sheaths or centers. The mother is exposed to local and general infection and the child to direct injuries which, in the case of the latter, may be the cause of some of the congenital cases. Auto-intoxication from lactation has been reported as a cause of optic neuritis followed by partial atrophy.

3. *Diseases of the Respiratory Organs.*—The adjacent nerve, chiasm or tracts may be implicated in diseases of the sphenoidal sinuses following disease of the nose, causing blindness or diminished vision with defective fields. Optic atrophy has followed pneumonia and repeated operations for empyema.

4. *Diseases of the Circulatory System.*—In anemia and plethora the eye is seldom directly affected, for the amount of blood in the eye may often be the reverse of that in other parts. The quality of the blood, however, is certainly a factor in nutrition of the eye and nerve. Thus, vascular affections may become harmful through the chronicity of their course and produce optic atrophy long after the cure of the original disease. We sometimes see cases of anemia and chlorosis with heart lesions, which may be a sufficient cause for the nerve disease, either through the results of embolism or hemorrhage or through malnutrition. Hemophilia, epistaxis, hematemesis and general hemorrhage have been followed by atrophy.

Arterio-sclerosis, atheroma and fatty degeneration of the blood vessels occur in certain general and specific diseases and are directly responsible for defective nutrition or hemorrhage into the nerve or sheaths, which results in atrophy. Vascular diseases which cause embolism or thrombosis may give rise to atrophic patches in the choroid or the retina with secondary partial degeneration of the optic nerve.

5. *Diseases of the Urinary Organs.*—Twenty per cent. of all cases of Bright's disease suffer from albuminuric retinitis, which, after resolution, will be marked by more or less atrophic changes. Double optic neuritis followed by partial atrophy has resulted from retention of the urine in a case of acute nephritis.

6. *Infectious Diseases.*—Both the acute and chronic infections act mainly upon the blood vessels, which, in many cases, are indirectly changed a long time after the first infection has passed away. Such lesions are of a simple atrophic and not of an inflammatory character and may occur in the brain, spinal cord or peripheral nerves. When the course is acute and the eye is soon affected, inflammatory changes or hemorrhages occur in other parts of the eye as well as in the nerve. Some of these are purely mechanical, as in the case of violent coughing or vomiting. When the course is less acute the virus is expended, apart from the vessels, upon the interstitial connective tissue, while the parenchyma remains healthy or is involved only in the stage of reaction of the interstitial process.

In rheumatism the deficient action of the kidneys and defective elimination of uric acid produce changes in the blood vessels which affect the nutrition of the optic nerve. So also in arthritis deformans, podagra and muscular rheumatism, atrophy may result. These conditions cause glaucomatous disease which eventuates in optic atrophy. Measles and scarlet fever aside from nephritis, typhoid fever, cholera, pertussis, parotitis, diphtheria, beri-beri and pellagra are occasionally responsible for optic nerve atrophy, while influenza is a fruitful source of blindness. Malaria is a cause of atrophy, though some of the cases reported may have been due to quinin. Syphilis is one of the commonest causes of optic nerve disease. It either affects the nerve directly by the lesions it produces in the nerve or its sheaths, in the chiasm or the tracts, in the brain or spinal cord; or by disturbances of nutrition; these conditions give rise to neuritis, retrobulbar neuritis, thrombosis or degenerative changes in the nerve; or indirectly through the changes which occur in tabes and allied diseases resulting from syphilis.

The tertiary stage of syphilis causes interstitial changes in the peripheral nerves including those of sight. Gummata of the brain may produce peculiar defects of the visual fields with atrophy. I have noticed monocular hemorrhage and retinitis followed by optic atrophy in congenital syphilis.

Epidemic and other cerebro-spinal meningitis has been followed by atrophy of the nerves of sight.

7. *Constitutional Affections.*—Although we may find atrophy of the optic nerve in some cases of tuberculosis and scrofula and despite the fact that these conditions are extremely common, no proof has yet been adduced that they are capable of causing atrophy in other ways than by affecting the general condition. Diabetes may set up retinitis, neuro-retinitis or retrobulbar neuritis with secondary atrophy of the optic nerve. Exophthalmic goiter, myxedema and leukemia have been accompanied or followed by atrophy of the optic nerves. One of the most constant symptoms of acromegaly and megalocephalia is optic atrophy.

8. *Congenital Optic Nerve Atrophy.*—Many cases of hereditary atrophy have been reported The blindness usually commences at puberty or during early adult life. The actual exciting causes of the amaurosis may lie in some of the foregoing diseases or in alcohol or other toxins. They are certainly of doubtful origin, although we are inclined to believe that the original cause of some of them is due to anatomic changes in the sphenoid bone which produce pressure on the optic nerve or to the mechanical influence of dilated and calcified vessels which ensue later in life and are associated with certain forms of atrophy in old people.

9. *Diseases of the Skin.*—We may readily under-

stand how diseases of the skin give rise to conjunctival and corneal disease from extension by continuity and similarity of structure. A case of neuritis with resultant atrophy has been seen after extensive eruptions on the scalp. Erysipelas may affect the optic nerve when attended by orbital cellulitis, with atrophy following. Enormous thickening of the chiasm and nerve has been found at the autopsy in a case of elephantiasis.

10. *Miscellaneous.*—Exposure to cold is a common cause given by patients to almost every affection. It is possible that this may be the exciting cause of an acute exacerbation of previously existing disease, which may determine optic atrophy. Sunstroke, exposure to continuous heat, light and high altitude or climatic conditions are certainly very rare causes. We sometimes see cases of well pronounced atrophy in which in neither the history nor in the examination are we able to find a sufficient, apparent original or exciting cause.

Conclusions.—Optic nerve atrophy occurs in general diseases usually as a result of direct irritation from their toxins, causing inflammation with resultant interstitial changes or through necro-biotic changes in the blood vessels affecting the nutrition of the nerve and retina. A certain proportion of cases are due to trauma and to actual lesions which cause pressure on the nerve or interfere with its nutrition through ambolic processes. Although many cases are of apparently obscure origin, in the majority it is possible to demonstrate a sufficient exciting cause.

NOTE.—This paper is but preliminary to another in which about one hundred case histories will be reported.

The thanks of the author are due to Drs. Risley, Hotz, Hobby, Foucher, Wilder, Zimmermann, Wheelock, Gould, White, Spalding and others who so kindly sent examples from their own observation. In the foregoing no authorities are credited; for literature see complete paper.

H. V. WÜRDEMANN.

TREATMENT OF THE INSANE.

Read by title in the Section on State Medicine at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY S. V. CLEVENGER, M.D.

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CHICAGO, ILL.

Treatment of the insane by our prehistoric ancestry can be inferred from fragmentary early literature and from conditions among existing races that have preserved the ideas and customs of remote periods. No precise chronologic statement could be made that would be true for all countries at any particular time, for civilization is a relative matter.

In India, a thousand to three hundred years before Christ, the causes of insanity were recorded as due to improper food, overwork, poisons, powerful emotions, etc., deranging the "wind, bile and phlegm," and six kinds of insanity were described, and in attempts at cure chastisement alternated with persuasion and gentleness. Elsewhere, at the same time, possession by evil spirits was the generally accepted explanation of insanity, and the afflicted were beaten to rid them of their devils, while priests were presumed to have some power of exorcism.

The custom of destroying the weak and defective was very prevalent. The early Romans threw their monstrosities from the Tarpeian rock, American savages often abandoned their aged and crippled to the wolves, and promptly destroyed idiots and the otherwise congenitally deformed.

Lunatics have been considered by the Mussulmans and some other barbarians and semi-civilized as entitled to special privileges, through a superstitious regard for them, and epilepsy was inconsistently looked upon as both a diabolical and a divine affliction, *morbus sacer*, or sacred sickness, being the term often applied to it. The epilepsy of Mohammed added to his religious influence.

Egyptian papyri indicate that drunkenness was recognized as a cause of insanity five thousand years ago; senile decay was also described and evil spirits were blamed as causing insanity. The Coptic descendant of the Egyptian language has words to express insanity, stupor and mental loss.

The Bible refers to the feigned dementia of David, Saul's madness and Nebuchadnezzar's mental affliction. Herodotus mentions the madness of the Persian king, Cambyses; Sophocles tells of the insane fury of Ajax, and Euripides describes mania and epileptic insanity. Plato suggests fines for those who do not properly provide for insane relatives, indicating that such patients were allowed to run at large and were neglected, as was the case in England down to a recent period.

Babylonian inscriptions invoked the gods for aid to sufferers from "sickness of the head." Plautus describes senile dementia in a comedy and narrates an instance of madness caused by "black bile." Hippocrates, 500 B. C., combated the popular idea of epilepsy being a divine disorder and recognized it, as well as mania, melancholia and dementia as due to bodily ailments. He prescribed hellebore for insanity. Asclepiades sought to induce sleep in the insane by gentle friction. At the beginning of the Christian era Celsus advocated "hunger, chains and stripes" for madmen, though there were occasional attempts at cure by music and reading aloud to them. Cælius Aurelianus opposed violence to patients, and Galen gave rules for treating insanity as sickness. Plutarch describes melancholia of the religious kind, and Horace gave rules for determining the sort of insane who needed interdiction and restraint.

It was the custom among Roman ladies to have idiots and imbeciles among their servants, though occasional protests were made against so doing. Court jesters were frequently selected from among the deformed or mentally unsound in medieval periods.

Early in the world's history organization for other than defensive and offensive purposes was comparatively crude and cruelty abounded on every side. Not only were the insane the victims of brutalities to a greater extent than at present, but degeneracy often ran riot among rulers, affording the "insanity of power" mentioned by Italian writers, which raged in connection with epilepsy, imbecility, paranoia and even chronic mania in the imperial families of Rome, Russia, India and other countries, afflicting Julian, Tiberius, Caligula, Claudius, Nero, Heliogabalus, Peter the Great, Ivan the Terrible and Mohammed Toglak, the sultan of India, as well as the founders of the Mohammedan and other sects in Asia and Europe.

Through the restraints of his environments and fellows, man is more accustomed to be controlled than he is fitted for the exercise of unlimited power, which favors the development of latent mental and moral imperfections. The abominable cruelties perpetrated by some of these insane rulers are equaled only by

the sufferings which the insane in all countries and ages have been forced to endure. Probably when merely neglected and permitted to run at large these defectives endured less from the peltings and derision of villagers, with occasional burnings at the stake as witches, than after the commonwealth began to make laws concerning them.

The earliest provision made for the custody of lunatics in England was under the vagrant act of 1744, and the constable of Great Staughton, Huntingdonshire, records an official charge of 8 shillings 6 pence "for watching and whipping a distracted woman." Shakespeare mentions in "Rosalind" the "dark house and the whip" with which madmen were punished.

The sequestration of lunatics as a public necessity had as little reference to the possible cure of such persons as, until recently, the idea that drunkenness was due to a diseased state obtained credence. And the superstitions of the ages found in the gathering together of the insane better opportunities for practicing theories of casting out devils by reducing the patient to extremities through starvation and beatings. Willis, who had charge of the insane George III, advocated fear in the treatment of patients. This royal sufferer's legs were duly blistered and he was dosed with Peruvian bark after the fashion of the day, and the king complained of the severity of his attendant, who is reported at times to have "knocked his majesty as flat as a flounder." Public discussion of this case led to some general amelioration of the insane in England, which was built upon later by Dr. Conolly and the compassionate Earl of Shaftesbury, but not without encountering ignorant opposition, for Conolly and Gardner Hill were denounced by the English clergy for imperiling the community by unchaining lunatics.

Riel, among others, described the horrors of German asylums in 1803. Before a parliamentary committee in 1808 it was testified that the insane in Ireland were tied by the arm to a cart and were thus dragged to the asylum, walking the entire distance, however far, and that mortification from tightness of the ligatures caused one in five to lose an arm. The communal and ecclesiastic control of the insane at Gheel, in Belgium, was hideous enough until the State took charge.

Some of the appliances used in restraining and "treating" the insane were the "Belgian" and other cages, wicker baskets, rotary machines, suspended boxes and seats or hanging mats, swings, hollow wheels, the crib, gags and head frames. The douche was used as a means of punishment and sudden plunging into "surprise baths" were in favor at one time to arouse depressed and discourage refractory patients. Most of them, however, were penned up in filthy, close rooms, sometimes of stone with wet floors, freezing in winter and stifling with heat and offensive odors in summer, fed on scanty and coarse food, often sleeping naked on straw and several in one bed. Frequently the poor creatures were devoured by rats if they survived the thirst, hunger and pestilential diseases that carried off many of them. Added to this there was usually brutal supervision. Sometimes convicts were employed to treat them as they pleased, and Esquirol relates how the madmen, goaded by ill-treatment, would watch an opportunity to kill their attendants with their chains.

By very slow degrees the care of the mentally afflicted has been improved. The inertia of governments and the merely temporary influence of exposures with want of general concerted action accounts for much of this slowness. There was fierce opposition roused in 1855 against the investigations in Scotland that were instigated by Miss Dix, and it was by effort out of proportion to results that finally secured a royal commission which occupied two years in examining into and finally reporting upon the cruelties to which the insane were subjected in that country.

In 1788 a Florentine named Vincenzio Chiarugi instituted the renowned asylum of Bonifazio in Italy, as a distinct departure from the inhumanities of the time. Cleanliness, gentle treatment, medical care and the fullest liberty supplanted the universal brutalities in managing the insane. It was ten years later when the chains were struck off the patients at the French Bicêtre through the long pleading of Pinel. He outlined a reform which was improved upon by his successors. Esquirol, in 1818, wrote to the Minister of the Interior: "Nude were the lunatics I saw, covered with rags, stretched on the pavement, a little straw to defend them from the damp cold. I saw them grossly fed, deprived of air to breathe, of water to slake their thirst and of things necessary to life. I saw them committed into the hands of whippers, a prey to their brutality. I saw them in narrow, dirty, fetid receptacles, without light or air, chained in certain dens and as wild beasts are penned in and kept secure." Pinel was suspected by the revolutionists of having a sinister design in asking permission to unchain his lunatics, and a deputy of Robespierre wrote: "Citizen Pinel, to-morrow I come to pay you a visit at the Bicêtre, woe to you if you lodge among your lunatics any enemy of the people."

Passing to our own times we find that an advance has been made toward a *pretense* of care. Formerly it was not necessary to even pretend that humanity was practicable in the management of the insane.

Home treatment of patients is usually difficult or impossible, and as the laws concerning supervision of the insane became more stringent most astounding instances of cruelty and neglect of insane by their relatives were discovered. Imbeciles, idiots and dements were found here and there through the country confined in dismal, small cells, scantily fed and clothed, and their bodily needs otherwise disregarded. On the other hand there are families who are making daily sacrifices in many ways to such unfortunates in their affectionate care.

Small places are not fit for troublesome cases. The long corridors of the State hospitals and the expanse of gardens furnish room for exercise and air, where the privations of a dwelling act prejudicially and compels resort to confinement and mechanical restraint, when all possible and reasonable liberty is everything in the treatment of insanity.

Attendants of the insane as a class are misunderstood and often unjustly blamed for what is most frequently due to the system of management of the institution. Even in the most degraded political asylum several really worthy persons have by some accident managed to be present, but too frequently their lives are made wretched by the perverse element and through their inability to prevent the abuse of patients by others.

In caring for the insane great forbearance has to be constantly used, for patients are often insulting and abusive to an exasperating degree, and there is

an all too universal disposition to hold them to account for what they do or say. "They are not responsible," is daily mentioned by one kind-hearted attendant to another, and in positions calling for so much self-restraint and forgiveness under extreme provocation it is really surprising how well attendants acquit themselves. But helplessness and opportunity are sufficient to tempt the brutes that low-grade politicians appoint to asylums.

If political control can be minimized and attendants be secured on their merits and promoted as they deserve for efficient service, salaries should be large enough to induce those possessing more than average ability to enter the service, but where the salary is the only inducement to the ruffians who demand reward for political work it is far better to make the salary low; for a better class of attendants in those politically dominated places is thus secured, from among medical students or other persons of good character who seek temporary means of study.

The great strain to which attendants are subjected when on duty makes it but just that they should have reasonable opportunities for relaxation and recreation.

If the political teaching prevails that it is not wrong to steal public property, employes can not be expected to be diferent from those over them, and while trustees or a business management may felicitate themselves upon their methods of "addition, division and silence," as conducted in safety and secrecy, their workmen claim also political spoils and extend the system to a practical looting of the place, carrying off everything portable at times. At Dunning there were "fence houses" and all-night saloons surrounding the county asylum where blankets, clothing of patients, tableware, food, etc., were taken from attendants in payment for drink and gambling losses.

Great differences exist, due to personal excellence of attendants, as to the treatment patients receive. In every institution there are instances of life-long friendships springing up between the recovered patients and those who cared for him or her, and the mere presence of a well-intentioned, considerate attendant has often been sufficient to calm the fury that had been caused by the harshness of others.

On the other hand, the greatest cruelties were practiced upon the insane at the county asylum by the criminals who were selected to fill the place of attendants, as appears from the Report of the Board of Public Charities, State of Illinois, 1886, page 119, and years later the asylum was worse than ever, and several murders of patients were brought to light judicially.

If the medical superintendent were not hampered by demands of politicians for positions to be filled by unworthy persons the decent care of the insane would be greatly simplified. As an example of the selections politicians often make it suffices to state that Peter Kelly, a Chicago policeman, was shot by a burglar and became insane from the neck wound inflicted; the assailant served out his time in the Joliet Penitentiary and was appointed as an attendant at the county asylum and was actually put in charge of the ward within which was Peter Kelly, his victim.

Dr. Joseph Lalor of the Dublin, Ireland, asylum, founded schools for the insane, and he was also an enthusiast on the subject of keeping the patients employed. Farm labor is beneficial to both curable and incurable cases, beside being an economic source of supply to the asylum. Almost every conceivable occupation is represented in the best managed institutions, and the daily labor of the patients contributes greatly to their welfare and happiness. But there are opportunities for abuse of employment in overworking or unsuitable occupations. A contractor at the county asylum was allowed to appropriate the patients' labor, and the warden (who later served a term in the penitentiary for robbery) compelled the insane to hard labor against their inclination. A patient died of typhoid fever while digging a trench for the warden and contractor mentioned, both of whom resented any medical interference with their control of the insane.

Visitors to insane patients often do much harm unintentionally. Friends and relatives exert an irritating effect upon the insane in unexpected ways, and calmness has frequently been succeeded by weeks of disturbance after the visit of a well-meaning relative. There are times, which the physicians are prompt to recognize, when the patient is made better by seeing his friends, and they are usually notified to come at once upon such occasions. Several thousand visitors and pleasure seekers have been known to throng and race through public asylum grounds, especially on Sundays, and the attendants on such days had their hardest work in controlling the patients who were thus improperly disturbed.

Several hundred members of the legislature with ladies, children and friends, "visited for inspection" some of the State institutions, taking possession of the place, converting attendants into nurses for infants, holding a banquet in the dining room of the hospital, drinking the dispensary liquors, rioting through the grounds and actually taunting some of the patients into fury. The effects of such a visit were observable for months afterward in many injurious ways. A small committee of inspection could accomplish all the legitimate work necessary where a rabble did nothing but harm.

Attempts to regulate Sunday visiting at a State institution brought a storm of opposition, as the diversion of travel threatened to break up some saloons in the vicinity in which one of the trustees was interested.

No institution of the kind should contain more than 300 insane is the universal declaration of alienists and others experienced in the treatment of these patients, but large and still larger asylums are built, as they afford better and still better opportunities for the management of great amounts of money after the political fashion. The impossibility of a medical superintendent overseeing so large a place as the average asylum, with one or two thousand patients, affords a pretext to politicians for putting in a "business agent," but invariably the double-headed arrangement proves to be a monstrosity, for no layman, even under honest coöperative endeavor, can possibly be aware of the needs of the patients and the place so well as the medical director. The insane are sick, and every moment demand the consideration due to sickness that only a physician can give.

Every ounce of supplies purchased, every turn of a wheel has reference to the care of patients, not mere boarders or cattle who require nothing but housing, feeding and grooming. When a layman has free control of a hospital he is more than liable to ignore medical requirements, as he knows nothing of them, and the medical head is humiliated and common

decency is outraged by the necessity of constant appeals to ignorance. Even when a steward is under the medical management, the latter is often defeated by intrigues of the former. What then is to be expected of divided authority; or, worse than all, the medical under lay supremacy? Imagine a judge being dictated to, by anyone, as to what legal books of reference he should purchase, particularly by a politician who, while preaching "economy," pocketed the public appropriations for legal book purchases. Most of the lay superintendents of county asylums are purely business agents of politicians in the worst sense of the term. Neglect, abuse and even murder of patients flow from such administration as naturally as foul water from a sewer.

It is often the case that the purely professional man is a poor business manager, but that is merely because of his devotion to his work; let the same professional man fully realize that in assuming charge of an institution for the sick that he must become a business man and his professional knowledge is be merely a part of intelligent training as to requirements, and the same ability that made him a good physician will also convert him into the efficient business medical administrator, for special ability is nothing more than general ability. There will occur differences among individuals as to whether relinquishment of lifelong habits are possible, and with this in view superintendents should always have had previous hospital experience, but there can never be any excuse on the ground of pretended "lack of executive ability" by medical men for the foisting of brutal, rapacious, uneducated politicians into control, however disguised as gentlemen they may be.

The "business manager" in some institutions has claimed the right to make purchases of medicines and very inferior stocks of drugs at high prices are pretty sure to result, against which physicians dare not complain at the cost of falling under politicians' disfavor. Inert quinin pills containing a little quassia to impart a bitter taste have been found in such stocks, fluid extracts as valuable as so much cold tea, but billed as Squibb's at his 20 per cent. advance over usual prices. Calomel which required a teaspoonful to equal ten grains, and other evidences of business enterprise in purchasing abound when the "executive ability" of a layman is placed over professional desire to have pure medicines.

At the county asylum the warden refused to buy a few dollars' worth of needed medicines on account of their expense, but the next drug account itemized 48 cases of beer, 10 barrels of whisky, 20,000 cigars, and much wine, brandy and fancy liquors were also covered by the item "sundry drugs." The periodical celebrations of the county commissioners and their friends in the dance-hall and dining-room of the asylum necessitated rapid and constant replenishing of that portion of the dispensary stock. Five dollars per capita would have covered the amount of meat eaten by 600 insane at the county asylum, yet in 1884 the bills were $15,763.04, and in 1885 amounted to $18,934.11, averaging $26 and $31 per patient, while 9 cents per pound was charged for hogs' heads in a filthy condition, some of which held iron rings in the noses. Mike Wasserman, one of the convicted boodle commissioners of unsavory memory, when once shown the iron ring in a pig's snout found in the soup of a patient, remarked: "Well, what would you have; gold watches?"

The bookkeeping of a large asylum can be made so elaborate as to be meaningless: Voluminous ledgers and auxiliary books and records have been known to be pure shams. Requisitions supposed to be sent to the storekeeper by attendants were not approved by supervisors or anyone else, and the storekeeper had every chance of misappropriating goods, and under the loose system of issue no proof could be secured of his guilt. Small quantities of butterine issued have been charged up as butter in large quantities; the actual ration of some of the dements consisting in forty grains of butterine, one five-hundredth of a pound of inferior tea and a small plate of corn-meal mush, and patients have fought over their scanty fare, the most helpless being often wholly deprived of food.

Sixty per cent. of the English asylums are maintained at 8 shillings 7½ pence for county and 9 shillings 7½ pence for borough asylums, which cost includes provisions, medicines, clothing, salaries, wages, furniture, and in some borough asylums, repairs. At Leavesdon, in 1887, the weekly cost was 7 shillings 5 pence. In Scotland the cost ranged from 5 shillings 10 pence to 10 shillings ¾ pence, the extremes per annum through England and Scotland being $72.80 and $125.58, with an average of 8 shillings 7½ pence per week or $107.64 per year.

In 1894 the lowest per capita in the United States was $104 at the Tuscaloosa, Ala., asylum, the Southern per capita average of all institutions being $129.23, the Western $166.58, the Northern $173.60 and Eastern $173.42. The average of fifty-two asylums in the United States being $169.15, which is considerably above the cost of maintenance of the English asylums.

While the average cost of American asylum maintenance was about three-fourths greater than in England, at the Chicago asylum the per capita in 1885 reached the sum of $270.39 under county commissioners who were subsequently indicted for conspiracy and fraud. The Illinois per capita of that year was $174.21. The succeeding year $243,262.33 was expended for about 700 patients, raising the per capita to $347.51. The total county charity expenditures for 1886 was $906,478.34, at least two-thirds of which must have been misdirected on the safe assumption that the asylum per capita was about thrice what it should have been.

During the years of the boodle gang control some $10,000,000 of public funds were disbursed; one saloonkeeper was awarded a contract of $150,000 for covering the court-house with a mixture of clay and paint, the cost of which was about $500. The robbery of the insane asylum fund was a small portion of the political division of spoils. In 1886 the poorhouse per capita was $200 and the county hospital $373.57, while in all the public charity departments the greatest privations were experienced by the inmates in spite of the vast sums appropriated. "Economy" was the excuse of the politicians for the miserable provision made for the sick and paupers.

It is with the greatest difficulty that the expense account of county institutions can be approximated. Concealment is the rule and in the words of a county commissioner, "the county expenditures is nobody's business." Collusion among all asylum officers is not to be presumed, for many of them are kept in ignorance of financial matters and can only see results in a general way against which they can not protest.

Estimating possibilities in the State institutions, it is practicable for $150,000 to be abstracted from

$500,000 biennially appropriated for a single institution, through perquisites of $30,000 to the one who heads the division of offices, sometimes a member of the legislature who has controlled a large number of votes for the State election; one trustee, who acts without salary and merely for the honor of the appointment, by diligently attending to the hospital business can secure $50,000; a less influential trustee can save $20,000 by coöperating with his companion in the matter of auditing accounts, while the one whose vote is not needed can be placated with $5,000. The storekeeper has opportunities to earn $10,000 on his $75 per month salary. An industrious business manager can net $25,000; the bookkeeper, through occasional opportunities can add $1,500 to his savings, and $8,500 can be secured by others in various ways from the wastage and shrinkage fields of the place. The treasurer is openly known to receive the interest on the asylum funds, though there is no legal provision for so doing. Probably $3,000 per annum is thus earned, and if in the meanwhile the State is in need of funds it can readily borrow by paying interest.

From $2,000,000 annually appropriated by a State for maintenance of its charitable institutions, one-fourth can be abstracted without the knowledge of the State board of charities or the medical superintendents, and without causing much privation among patients, the different funds affording dissimilar chances for discounts.

The "stuffing" of pay rolls is not so likely in the State hospitals, particularly when the pay list is published, but in county and city offices of all kinds great sums have been made by placing fictitious or false names or rates of pay on pay rolls of employes. An 1896 instance was unearthed by a civil service commission investigation, conducted by attorney Luther Laflin Mills. The clothing account can be profitably manipulated, in county asylums especially. At Dunning 100 suits would be issued to a ward full of patients, and the next day the same suits were reissued to another ward. The friends of patients incessantly complained that the patients were not wearing the clothing brought to them, and the destructiveness of a few patients was made to do duty as an excuse for the disappearance of hundreds of suits.

Fuel purchase in some places enables incredible sums to be charged. A very superficial examination would result in astonishing disclosures in this field, unless baffled by the opposition usually raised against exposure of any kind.

Trustees are ostensibly selected for their business aptitude, public spirit and philanthropy; they receive no pay, and are presumed to regard the honor of the appointment as sufficient recompense. Occasionally it happens, after a political overturn, that prominent political workers, for services in securing votes, are rewarded by such trusteeship appointments, and while it is not invariably the case, it too often happens that a four years' term as trustee enables a poverty stricken politician to blossom out as a banker, real estate owner or man of wealth generally.

Combinations are sometimes formed among them in such a way as to control matters, and the resentment of the minority rises to threats at times, with the compromise that ensures silence. When an indignant trustee resigns and calls his former comrades hard names, you may rest assured he is not satisfied with his share of the profits. A $60 a month clerk has been known to spend his entire time at an asylum while acting as trustee without salary, and the loss of his clerkship was taken quite philosophically. One of the sixteen county commissioners who were subsequently indicted under what was known as the "omnibus boodle" finding, neglected his small saloon in Chicago to reside at the county asylum altogether. He escaped to Canada too soon in his career to have saved much money. An Indiana asylum trustee displayed more "executive ability" than the rest by placing $100,000 of asylum funds in his carpet sack and traveling northward, without the preliminary bother of obtaining percentages for asylum supplies from bribing merchants.

All asylum trustees are not dishonest, but the system is sufficient to develop whatever dishonesty may be latent in some, through the opportunities afforded.

Under the New York State Care Act of 1890, separate institutions for the chronic insane were abolished as pernicious, and Illinois in 1896 erects just such an institution.

The death rate in New York asylums has of late years been remarkably decreased by regulations that restricted the chances of political stealing.

Dr. Carlos F. MacDonald, the president of the New York State Commission in Lunacy (*Alienist and Neurologist*, July, 1896) relates that the changed system in that State enabled a saving to the tax payers of $300,000 over the previous year. The cost of maintenance for the fiscal year 1892–3 was $216.12, and in 1894 the per capita cost dropped to $184.84, a reduction of $31.28. The supervision of all expenses by a thorough system of scrutinizing public asylum expenditures in a business-like manner cut off nearly $500,000 a year from what formerly went to politicians, and the patients now have some of the remainder.

All per capitas in the United States are too high in the aggregate, and the insane could live as well on one-half of what is appropriated for them, were the politicians' hands taken out of the treasury.

A State board of public charities without pay, except for its secretary, has ostensible supervision of accounts in Illinois, but the members have not the time to spare for anything like careful supervision, and are thwarted in every way possible in attempts to thoroughly understand the expenditures. In no one of the biennial reports of this board is there evidence that proper access to Cook County public charity expenditures was afforded the board. Immediately before the celebrated "boodle trial," which showed the most reckless plundering of the public funds by the county commissioners, the State board reported that the county accounts were correct.

The intriguery, waste, extravagance, plotting, rioting, neglect of duty, insolence of employes, disregard of the needs of patients and of medical care, the "doping" of patients by attendants, and frequent instances of personal abuse, the insufficient cooking of insufficient food, with the thorough "cooking" of statistics and accounts, the high death rate and low recovery rate, the crowding of several violent patients in one room, and multitudes of other discreditable affairs, must be witnessed to understand how deep-rooted and arrogant a hold the political spoils system has upon the country.

And there would be no bribed were there no bribers. The merchants who divide public plunder with politicians, and the citizens who look complacently on, are equally guilty.

A physician seeking an appointment to insane asylum service asked a veteran alienist what steps were necessary, and was advised in all seriousness to make the acquaintance of the nearest saloon-keeper.

The number of gamblers and liquor sellers who hold offices of all kinds in connection with public charity disbursements indicates the influences at work in American politics. When surprise is expressed that such selections should be made, it is claimed that such persons are as honest, capable and deserving as merchants and board of trade dealers, many of whom evade tax paying and seek nefariously profitable combinations with politicians to furnish supplies to asylums, hospitals and poorhouses.

The fact remains, however, that there is nothing in the occupations of the liquor dealer and gambler that specially fits them for caring for the public insane and their funds, beyond the mere superior ability to control such appointments afforded by the faulty primary election laws, which legislators would speedily remedy, were it not that their own places would be jeopardized by such changes.

But asylum management by such classes is merely a legitimate outcome of the general spoils system operation: the helplessness of the sick and insane affording the best opportunities for brutality and rapacity. The privations, sufferings and frequent murders of insane patients are strictly logical outcomes of the pernicious system which fills our legislatures, State, county and city offices with gamblers and saloon-keepers, who swagger about in vulgar jewelry and attire, openly congratulating one another upon some recent success in prostituting public and private interests. All such matters are familiar to citizens who have the power to make reformations, but do not intelligently combine to make them.

Reports of the State Board of Public Charities for Illinois are filled with accounts of the insane in various counties being treated more as animals than as men and women, neglected, abused, chained, locked up in nakedness and filth, no medical or personal attendance, packed in rooms too small for their numbers, with poor ventilation and foul odors, no separation of the sexes, insufficient food, and myriad other such matters are officially mentioned in these reports to the governor and legislature, without influencing the least improvement.

The charges sustained in the 1886 investigation of the Cook County asylum were:

1. Cruelly insufficient provision for the insane in the county asylum in all respects, when more than ample funds are alleged to have been used by the management of said asylum for the care of the insane.

2. Abuse of said insane by said management, said abuse being direct and indirect, by personal violence and neglect.

Subsequent to this report to the governor, a county court investigation on the petition of Julia Willard, May 13, 1889, was made in which witnesses detailed murders and abuse of patients, their starvation and the brutal nature of the management. Patients were made to work for the profit of attendants, their clothing was stolen and sold to saloon-keepers; fighting, rioting, feasting and drunkenness of politicians were narrated, with no apparent difference in the conditions since the State board report of 1878, except in enlarged opportunities for brutality. In that document the county farm was characterized as full of instances of neglect and ill treatment and that "party politics, trading votes and speculating" contributed the chief employment of employes.

After the 1889 investigation it was considered safer to give no physician an opportunity to bring matters to light, so a lay warden hires the doctors and keeps them under sufficient control to prevent complaints getting to the public.

In 1895, as a sample of many instances, two attendants were on trial in Chicago for kicking a patient to death; an "investigation" was made by the commissioners, who duly whitewashed themselves, and by publishing hundreds of columns of newspaper interviews, and vaporings generally, managed to confuse everyone and tire out the public. A New York legislative inquiry into the killing of a patient came to nothing through the report of the committee being stolen.

Physicians alone are competent to understand the real wrongs of asylums and even they must reside the greater part of a year in such places before they can fathom the real condition of things, which every ingenuity of political intriguery is invoked to conceal.

A favorite resource of politicians when attacked for malfeasance or inhuman violation of trust is in diverting public attention from themselves by personal onslaughts made upon their accuser.

Nothing seemingly could be further apart than discussions of gambling and the care of the insane, but the most amazing incongruities are seen in the results of political control of offices. The successful manager of politics, "the boss of the machine" in a great city, is often the head of a large gambling resort with a saloon and other immoral accompaniments attached, affording rendezvous for his lieutenants in plundering schemes. These "bosses" are great organizers, and exert as complete control over primaries, nominations, elections and office conferring, as though they actually owned the State and its revenues. Adepts in manipulating election machinery and playing upon the passions, ignorances, and prejudices of the populace, they have defied attempts at their overthrow and continue to divide municipal and other governmental funds and places among themselves. Opposition is crushed in every way by corruption, or discomfiture of whoever is rash enough to attempt reform in a practical way, even to the destruction of individuals. Windy addresses on reform measures do not disturb them in the least; they can even make such demonstrations themselves, and in the name of reform increase their power for evil. It is when actual interference with their robberies are made whether through interposition in behalf of the sick, insane and paupers whose funds they control, or otherwise, that the hand of the "gang" falls heaviest, and the motives and character of the reformer are assailed. Nor is there hesitation over a mere matter of assassinating too troublesome an opponent. Political murders have been numerous and successfully concealed, the party who makes exposures is adroitly made to appear in the wrong so as to alienate public sympathy from him if his murder comes to light.

In the *Chicago Inter Ocean*, Nov. 4, 1884, appeared an appeal from a physician at the county asylum stating the atrocities there and asking "all respectable men to be sure that the county commissioners for whom they voted owed no allegiance to gamblers and thieves."

The doctor was promptly shot at and several other attempts were made upon his life and as he kept up

the fight ten years he was finally pronounced to be insane by politicians in general, and certainly from the standpoint of a community which condones robbery of the helpless, the one who refuses opportunities to steal from them must be out of his environment and practically a crank.

The mental construction of most of these politicians is such that they can not conceive of mere professional devotion and enthusiasm. A physician who would lay claim to being actuated by a desire to scientifically advance humane measures is looked upon as a brother hypocrite and demagogue. Honesty is inconceivable except as defective intelligence. The refraining from stealing public funds is considered as mere want of smartness enough to know how to do so.

It often befalls that an ousted administration busies itself in inventing occasions for spitework with a view to possible restoration to power, so it is not all accusations against the ins by the outs that can be believed.

Deaths of patients by violence afford chances, about election periods, for exposures. In such investigations the mode of appointment of all officers and employes should be inquired into as affording ideas of the animus and discipline of the place. The incentives of charges and the inevitable counter charges need deep probing, as well as does the construction of the investigating body, its interest in the investigation and liability to bring out the truth or cover it up. Deposed administrations have been active in arraigning their successors for real or imaginary misdeeds, and upon rare occasions some one has instituted charges from genuine reform motives, but even these reformers are apt to be jealous of one another and instead of supporting, detract from and disparage each other's efforts.

Brutal natures are common enough and it is not remarkable that many of their possessors find their way into asylums as attendants in reward for services performed at the polls for those who appointed them. When a murder occurs at an asylum the first question should be: *Who appointed the murderer* to his position? and full light should be thrown upon the character of the office giver, to disclose the entire responsibility for the commission of the crime.

These weakest and most helpless of humanity are not only liable to be neglected through their filthiness, repulsiveness and burdensomeness, but their irresponsible aggressiveness has often aroused the brutal retaliation of the none too patient or considerate savage, who, all too often, happened to be in charge.

The influence of the saloon-keeper and gambler in placing these characters where they can safely exercise their low instincts, is easily seen. Many liquor dealers and gamblers are, as they claim to be, as good as many in other occupations that are regarded more respectable, but from their numbers in official life it would seem that they are considered to be even better.

When the liquor business is responsible for so vast an amount of crime, insanity and pauperism, does it not seem cruel that liquor dealers should thus be permitted to chase their victims to the grave?

A phase of the wrongs endured by the insane occurs in the blunted conscience of the people in accepting the misappropriation of public funds as a matter of course and even furthering by their votes a determination of which particular band of plunderers shall have charge of the spoils.

The merchant who connives with political spoilsmen to sell inferior materials at extravagant prices to public institutions may carouse with the business agent of an asylum and both find happiness in their divided gains, and the thought that life, health, sanity, has been taken from patients through depriving them of what was intended for their care, apparently does not disturb their commercial minds, but the physician who sees patients dying from drinking sour milk and eating rotten meat and vegetables, and from the want of a few simple remedies, or from insufficient warmth because the clothing and fuel accounts had been manipulated with political "executive ability;" the physician who witnesses such things sees clearly who is to blame for the privations, deaths and horrors all about him, while observing the flashy dress and jewelry of the vulgar feasting politicians who have divided almost openly the money lavishly appropriated by the people for maintenance of the unfortunates.

The cohesion of the spoils system in its immense ramifications is almost incredible. Its beneficiaries surround public hospitals and branch out into commercial and social life in all directions. The demagogue relies upon the true condition of things not being understood by the people at large.

All the asylums of America are not badly managed, but the present political system does not encourage humane care of the unfortunates. An occasional hospital for the insane is well managed in spite of the prevalent bad system, but there is constant danger of a political change driving out the honest and capable from such places.

With civil service reform there should be the greatest publicity demanded for all asylum affairs. A visiting staff of specialists should be appointed in spite of the fears of some trustees that the world would thus be too readily informed of asylum shortcomings. There should be strict scrutiny of the accounts and a check system adopted that would discourage dishonesty. Banks overhaul the books of their clerks and railways multiply checks upon their agents, but with all such precautions the ordinary mercantile and manufacturing organization is occasionally robbed. Were the defective accounting system in use in State and county affairs to be allowed by all business men and private corporations failures and industrial wreckage would be universal.

Civil service laws properly enforced would be directly instrumental in restoring thousands of the insane to sanity, who, under the present faulty system, are doomed, and further murders of patients by politically appointed brutes would cease. When the politicians' profits were reduced by $30 per capita in New York State the death rate in asylums fell greatly and the recovery rate rose.

Reforms, as well as institutions, evolve and a more scientific treatment of the insane will come with other advances in the world's affairs. But, for the present, we can look for no radical improvements in asylum matters until civil service rules are firmly established therein, which can scarcely be hoped for until the primary election methods admit of honest candidates being secured for all public offices, an achievement which means no more or less than the destruction of the power for evil now defiantly exercised by the gambler and dram-seller.

Herbert Spencer says: "Any system that confers the rewards for merit upon the undeserving is demoralizing and destructive of social advance," and, "though all efforts for reform are out of proportion to the

results, the reformer may take comfort in the knowledge that the little that is accomplished will endure."

70 State Street.

PERTUSSIS AS A NEUROSIS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY S. J. RADCLIFFE, A.M., M.D.

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WASHINGTON, D. C.

The pathology of pertussis has long been in doubt; this is well shown by its varied and uncertain therapeutics. The definition of the malady is usually based upon its most prominent symptoms—the characteristic paroxysmal cough and consecutive whoop. The cause of this characteristic cough and whoop has never been positively located. It is said by some to be a local irritation involving the pharyngo-laryngeal space, set up by some external influence, possibly bacterial; some, that in addition the morbid irritant is absorbed through the lymphatics and blood vessels and produce a systemic febrile state, and some that it is a vague commingling of various elements, local and general, physical and nervous, and still others that its phenomena are entirely reflex. There is no doubt regarding its infectious nature, but the peculiar mode of this infection is still veiled in uncertainty. It may be from exhalations from the vomited matter or expectorations, the breath, the cutaneous surface, or from all.

Whooping cough may be, or may not be of bacterial origin. It is not yet proven that it is. Certainly no bacillus of pertussis has yet been isolated, and therefore no diagnosis can be based upon a bacillus as a factor in the etiology of the disease.

Negatively, and practically, no treatment of a purely bacterial nature has been of any avail. Whatever benefit that has been derived from germicides has been by abtunding the terminal branches of the nerves supplying the parts involved, or the parts treated, and have only a local effect, without reaching the source of the nerve energy, its prominent feature.

On the other hand, the only remedies beneficially affecting the disease are those that have been considered of a constitutional nature, those that have been directed to the nervous element upon which it is believed to be grounded.

The subjects of whooping cough are notably those coming from neurotic families. They have descended on one side or the other, or sometimes from both of the parental lines, from generation to generation, from neurotic ancestry, through children and children's children, the concentration varying in individual cases.

By careful inquiry it will be found that full 75 per cent. of the subjects of this trouble are neurotics in the more or less strict sense of the term, by heredity especially, or it may be by occasionally from acquired habit; and when we consider that as many or more escape the disease than contract it, more are naturally immune than susceptible to it, this view of the subject comes out in strong relief and merits our closest attention. No stronger proof is necessary to negative its local origin, or illustrate the resisting power inherent in those exposed to its attacks. Those who escape are made of different stuff, but those attacked exhibit the nervous characteristics and conditions of typical neurotics in every phase of life—are easily alarmed, are easily depressed, or impressed for good or ill, are easily moved to tears or excited to anger; their sleep is most always disturbed; they suffer from enuresis, impaired or arrested digestion from shock or fright, are easily agitated and prone to convulsions, which are often produced by very slight causes.

If pulmonary symptoms are associated with the disorder, death is apt to occur from interference with the respiratory act, through the dominating nervous element. It may cause, during a paroxysm, inhibitory spasm, and, compressing the chest walls, induce asphyxial convulsions and death, or by violent action of the heart muscles increase the hyperemia, overfullness, congestion, or cause the complete arrest of the pulmonary circulation, and by sequence the respiration, and death by apnea.

Another very important feature of the disease is the possibility that it is sometimes associated with or may lead to glycosuria. It is contended at present that this reference is merely one of suspicion rather than one of fact; yet if we survey the whole field of investigation, and the peculiar symptoms of some of the cases we have had under treatment, where the issues were not plainly developed, our suspicions may be more than verified, by a close comparison of the results of such cases with those symptoms referable to glycosuria. It certainly does not conflict with the theory of Pavy, that it (glycosuria) is due to want of assimilation, for want of assimilation is due to nervous influences.

This feature of the malady has been very largely neglected, overlooked, or possibly ignored as of little utility in the examination of cases presented for treatment. But you will be surprised to find, if careful and proper examination or inquiry is made, how frequently glycosuria is present in given cases, especially in the severer types of the disease. It is not claimed that this condition is constant or permanent. It may be transient, and frequently a very delicate test is required to detect it. Though the literature of the subject is at present meager, indeed there is none to be relied on, the indications are so apparent that it may be confidently suggested that investigation on this line would lead to profitable and important results.

I doubt if one physician in a hundred has had his attention called to this particular aspect of the matter, or if he thinks it worth while to examine the urine of a child under his care, suffering from pertussis. He usually takes it for granted that it is a child's disease, has its period of incubation, onset, acme and decline, and watches to see it pass from one condition to the other, rather as an interesting pathologic process, than as a disease to be combatted at every step, from center to periphery. He is therefore apt or inclined to ignore or disregard all symptoms except those in sight, and limit his therapeutics to the local manifestations, as if they were all of the affection.

We do wrong if, in framing our diagnosis, we leave out of view other organs which may be involved, either primarily, or in the course of the disease, especially such vital organs as the kidneys and their function and products, if we fail to discover or decide as to the appearance of sugar in the urine, and its possible occasion of diabetic conditions, as coma, dyspnea, or pulmonary edema, which are generally looked upon as the result of the inflammatory process.

Glycosuric phenomena in whooping cough are usually slight, and as a general thing play a very

unimportant part in the complications, or, I might say, in the development of the affection, and on that account may be easily overlooked. It is usually temporary, as desquamative nephritis is in scarlatina. Yet that it may and does occur to a greater or less extent, this is quite sufficient, as said, to emphasize the suggestion and point attention to it, that we may in the future properly consider its probable immediate or remote tendencies and results.

Glycosuria is not properly a complication any more than endo- or peri-carditis are complications in inflammatory or articular rheumatism, or, as now taught, rheumatic fever. It is a part of the disease, as nephritis in scarlet fever, and pulmonary extension in pertussis and measles, and originates from the same cause, so that in treating a case of whooping cough, it is well to have in mind all the symptomatic manifestations which may be developed in its course—those that are so far well known and appreciated, as well as the possibilities of some others, not perhaps in the category of direct symptoms, but which may be elicited by careful inquiry pursued in the right direction.

It may be, therefore, worthy of renewed emphasis that, if glycosuria is eminently and correctly of nervous origin, affecting primarily the nerve cell and its proliferations, no discussion of pertussis with this accompanying symptom of glycosuria can be complete without including the nervous element, at least, as one of its factors.

Another consideration worthy of notice is in regard to its therapeutics, that is, that all the best remedies or treatments heretofore instituted for the relief of pertussis, have been those known to have beneficial influence in all diseases of a nervous type, as neurasthenia, hysteria and the like. The remedies, therefore, that do the most good are those that are directed to this end, and the nearer we come to correcting the condition at the seat of action, the nervous centers, whether it be from impaired nutrition, imperfect cell proliferation, antagonism of nerve elements or forces, or retrograde metamorphosis, the nearer we will come to perfecting our therapeutics of pertussis.

Those therapeutic agents recognized as anti-spasmodics are the ones mostly relied on in treatment and management of pertussis—all those medicinal agents which act primarily on the nervous system, either immediately or remotely, that deaden the sensibilities, have an inhibitory and quieting effect either locally or generally. Local applications relieve, not by destroying germs, but by lessening the irritation and distress of the sensitive parts. They have no continued or permanent effect upon the course of the affection, they only temporarily obtund the sensible terminal nervous filamants distributed to the immediate seat of the mucosa to which they are applied. They constringe the capillaries, lessen the blood supply, quiet the irritation, diminish the tendency to paroxysmal cough, to closure of the glottis, and the characteristic whoop. So soon as the local effects wear off the symptoms and paroxysms are the same as before. Local treatment can only have a tentative result, unless persisted in without interruption during quickly repeated intervals. Only permanent benefit can proceed, and cure result from constitutional treatment.

It would be useless and profit but little to enumerate all the remedies prescribed in the treatment of pertussis; there are legions of them. It will suffice to mention a few of the most recent and popular, or those which seem to have given the best results, namely, bromoform by inhalation; antispasmin, narcein sodium, and sodium salicylate one-sixth to one-fourth grain three or four times daily; phenyl-glycollate of antipyrin, formaldehyd, quinin in large doses; cocain in doses of one-sixth to one-third grain three times daily, and vaccination, which is said to have no effect on those who have been vaccinated. Some others are still employed, as antipyrin in laurel water, belladonna, atropia, potassium and sodium bromid in decided doses, assefetida, valerianate of ammonium, valerian, infusion of red clover blossom, and chestnut leaves and extract. Most of these are administered internally and have a general effect. Some are applied locally for immediate results. It is agreed they are all of about the same nature, and we have the same object in view in their employment. Those that have a constitutional bearing reach the nervous centers, and indirectly inedicate locally through the blood current and the nerve supply, and by this means set up an equilibrium or healthy action throughout the system.

Spraying the throat and fauces with cocain, antipyrin, potassium, bromid, carbolic acid and the like, aid materially in the treatment, but as said, have only a temporary action, and are not relied on as would be the case if the disease was simply and only of local or bacillary origin. Spraying with peroxid of hydrogen, as recommended, could hardly be placed on the list of successful remedies, unless there were pus germs present. Spending time in a gas house, at one time in vogue, has been abandoned as not favorably affecting the disorder.

The main point to have before us in the treatment of pertussis is the general health of the patient. This will be most undoubtedly aided, and the cure facilitated, by the patient living as much as possible in pure, open air, by diversions of any kind, and by all means that have a tendency to elevate the standard of health.

The object of this paper is more suggestive than argumentative, with no pretense to completeness, and with no effort at detail. Its symptomatology, and course and deviation from a typical standard, are too well known to be rehearsed, and statistic information is too uncertain a quantity to be of any relative value.

SPINAL INJURIES IN INFANTS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY JAMES PORTER FISKE, M.D.

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The subject of spinal injuries in infants is presented to you in order that a discussion by this body of these injuries will determine their relation to the faulty development of the spine in the young, and to determine the relation between trauma and spinal caries.

The "traumatic spine" may be defined as any injury to the spinal column. Injuries to the spine in the very young are not infrequent, though the great majority of such injuries are slight. A simple sprain, muscular or bony contusion, sometimes combined with slight shock, is the usual condition following a

slight fall as from a cot or sofa. Again a very slight fall or sudden contact with a sharp corner of an object, may produce a true fracture of the spine, usually a fracture of a spinous process. If a child falls and strikes sideways we may have a green-stick fracture of one or more ribs with twisting of the bodies of the vertebræ, presenting a clinic picture of "acute rotato-lateral curvature" or scoliosis.

While many of these injuries are more or less quickly recovered from, a certain proportion will continue to give symptoms of pain, irritability and malaise. A slight jar or wrench may so injure ligamentous structures that symptoms persist for a long period of time, both in adults and children, and such injuries in children may be an etiologic factor as regards the faulty development frequently seen in this region, as in curvature of the spine. To the surgeon who persists in making an exact diagnosis, these cases are trying and unsatisfactory, as every injury to the spine, whether severe or slight, must of necessity be somewhat obscure. The name "traumatic spine" is particularly applicable, as it is frequently impossible to classify spinal injuries as sprains, muscular contusions, rupture of ligaments or even fracture, unless the case reaches the operating table or the autopsy room.

The results of an injury, mild or severe, to the spinal column can never be foretold, but to the rapidly growing infant such an injury may be most disastrous. We obtain a history of traumatism in about 50 per cent. of Pott's disease, and when we remember that many children apparently in perfect health are the offspring of tuberculous parents, and that such a child has an innate susceptibility for tuberculosis, or more probably has a latent tuberculosis waiting simply for a traumatism at a suitable site before firing up—these considerations should lead us to treat such cases not by observation, as is so frequently done, but by fixation and protection. A previous injury is often, I believe, the predisposing factor in the production of spinal caries.

Though it is not generally recognized, I believe that traumatism is an important etiologic factor in certain cases of rotato-lateral curvature, and if we could obtain a clear early history, many so-called idiopathic scolioses in children could be shown to follow the traumatic spine. Unilateral muscular rigidity, an attempt by the patient to assume the position of greatest ease, a slight bending of one or more ribs, are in themselves sufficient to stimulate a faulty development of the spine in the rapidly growing infant.

The examination of an infant suffering from a supposed traumatism of the spine should be as though we were trying to detect early Pott's disease. The child is undressed and the posture noted, placed on the table face downward, and spine examined to detect any point of tenderness, ribs each side examined to detect any contusion or bending, feet and pelvis carefully raised to note any rigidity or diminished flexion. Pain on pressure, rigidity of the spine and increased irritability of the patient, point to the diagnosis of "traumatic spine," and as such demands treatment by fixation and protection.

The necessary fixation and protection in infants is most readily, efficiently and cheaply obtained by a starch-jacket. It gives absolutely no discomfort, is not heavy, and it can be applied by any one in a few minutes. The material used is wide-meshed, well-starched bandage about four inches wide. The body of the infant is enveloped in seamless shirting from the axilla to well below the pelvis. The starched bandages, after being soaked in water, should be squeezed as dry as possible and then applied. The starch-jacket may be applied by the hammock method and should be in the more serious injuries, but as a rule I have extension and counter-extension made by having the child held in the horizontal position, face downward, one assistant making traction at the axilla, a second pulling the thighs at the great trochanters. Every jacket should extend from the axilla down to the great trochanters. After a sufficient thickness of the starch bandage has been applied, the ends of the seamless shirting are turned toward and over the jacket, thus insuring a smooth and soft border to the jacket. The child is now lowered on a soft pillow and the jacket allowed to set. It will take some time for the starch bandages to harden, but as a rule the child will rest quietly for a few hours. The starch-jacket is quite elastic, firm and considerably tighter than plaster of paris, and is admirably adapted to the traumatic spine in infants. As a matter of cleanliness, and for the proper care of the skin, the starch-jacket should be removed at the end of a week, and if indicated another applied, though I have kept one continuously applied for three weeks. This jacket is not to be cut down the front, but is intended to stay on as applied.

The following case is reported as it represents some of the points brought out in these notes:

W., age 26 months, traumatic spine, green-stick fracture of fifth and sixth ribs, near the angle, acute scoliosis, fine healthy boy, fell from nurse's arms. First saw case on third day of injury. Pain and swelling over and to the left of spine over fifth to seventh ribs. Careful examination revealed a green-stick fracture of two ribs in this region, as well as a contusion to the spine. The child in assuming the position of greatest ease, showed a lateral curvature. The child was held in horizontal position, considerable extension made, and a starch jacket applied. Before application of the jacket the child was in constant pain and distress; after application the child was very quiet. The treatment was continued for six weeks. At the end of this period all symptoms had disappeared, but at the site of fracture of the ribs some thickening remained. The mother wrote me some months later, stating that the child was well in every respect. Sufficient extension was made in this case, so that the spine was absolutely straight before application of the jacket.

I shall refrain from reporting any other cases as I expect later to exhibit some statistic tables and these notes are presented to you in this form simply as a preliminary to your discussion.

In speaking of the prognosis of any injury, several factors are of importance in determining the probable outcome. The condition of the child before the injury, the existence of a cachexia, a possible latent strumous diathesis, the hygienic surroundings, are in themselves sufficient to turn the chances in one direction or another, whether we shall have an early recovery or a tedious and prolonged convalescence.

The relation between injuries and tubercular processes in joints is of great interest. Modern pathology, coupled with careful clinic observation, seems to have established pretty thoroughly that many tubercular processes have their birth in a previous traumatism, it being assumed that a tubercular taint was a concomitant condition. The relation between prolonged muscular spasm or irritability following a traumatism and faulty development of the spine in the rapidly growing infant has already been referred to.

My observations have led me to adopt the follow-

ing rule: Any injury to the spine in an infant which requires treatment, requires the starch-jacket. Lotions should never be countenanced until the symptoms have subsided by the proper use of fixation and protection.

ANGIO-NEUROTIC EDEMA.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

L. HARRISON METTLER, A.M., M.D.

CHICAGO, ILL.

Though the pathology of angio-neurotic edema is still a mere theory and its treatment a source of continual disappointment, the affection itself is of sufficient importance and its occurrence of sufficient frequency to warrant further study. In the *American Journal of Medical Sciences* for December 1892, is an account of the disease, by Collins of New York, which is the most complete of the more recent descriptions. Dr. Collins' paper is based upon some seventy-five cases gathered from literature and personal observation; to which I can add two more, one having been under my care for about two years. The history of this case is as follows:

A married woman, 64 years of age, white, the mother of one child living. I was consulted by her in July, 1893. Her family history revealed nothing of special note. Her own general health had always been fairly good except for a certain nervousness and mental depression brought on by financial losses and worry. The climacteric had come and gone without producing unusual distress. She was not naturally a neurotic, though her nervous organization was an active one. There were no cardiac or pulmonary manifestations. The special senses were all unaffected. There was no pelvic trouble; no signs of disease of any of the abdominal organs. Urinary analysis revealed nothing abnormal. And yet in spite of all this negative testimony, for a year or more before I saw her, she had had frequent peculiar attacks of dyspnea, "distress" in the stomach, followed by violent eructations of gas, cyanosis of the extremities, chilliness, great mental anxiety and a horrible fear of sudden dissolution. These attacks would appear without the slightest premonition. Day and night were alike favorable to them, though the majority of them came on toward early morning. So often did they awaken her out of sleep toward daybreak that she dreaded going to bed, and tried the expedient of having her husband arouse her if he were awake at about the time they usually came on. Conjointly with these spells appeared sometimes, large, circumscribed, edematous spots in various parts of the body, mostly on the arms and legs, occasionally on the face and epigastrium. They resembled giant hives, itched slightly, caused no pain or other sensation than that of slight tension, were raised above the surrounding skin and were of the same color, pitted feebly upon pressure, and were devoid of all signs of an inflammatory nature. Sometimes they would disappear from one part of the body to reappear a few hours later at another. They have lasted at times from several hours to several days. Their disappearance was generally as abrupt as their appearance. Singularly enough when these edematous swellings would appear, the abdominal distress and depression of spirits seemed to be somewhat relieved; and later on the patient would walk violently up and down the floor or pass into another room with a different temperature, in the hope of provoking the swellings and thus ameliorating the nervous distress of the attack. I have seen her try this several times and though I am at a loss for an explanation, I have been an eye-witness of the relief striven for. When the edematous spots had finally vanished and the attack had come to an end, the patient would seem to be almost overcome with extreme exhaustion. She would sigh heavily and lie for a long time perfectly motionless. Even conversation seemed to be an effort and if left alone she would soon fall into a sound slumber. During this period of exhaustion I could not detect any actual difference in the number or strength of respirations or heart beats. The patient constantly denied all auræ such as globus hystericus, etc.

For her trouble the woman had consulted a number of physicians in the United States and in Canada; had received many opinions, but had never been afforded any permanent benefit. Her appetite was good; her tongue clean; her bowels regular. There were no indications of gastric catarrh. She was a sound sleeper and not much of a dreamer; when she did dream, however, her dreams were decidedly of the distressing, morbid sort. Latterly she became very melancholy and much depressed in spirit, especially about the apparent incurability of her disease. She suffered no paresthesia save the slight itching of the edematous enlargements. There was no spinal tenderness; no abnormality of any of the reflexes. After one of her attacks there would be an abundant discharge of urine. Under my direction she patiently and faithfully tried a long list of nervins, antispasmodics, general tonics, and methods of general treatment such as electricity, hydrotherapy, etc. There was no permanent benefit from anything. A change of environment and a short trip into the country seemed several times to keep off the attacks for awhile. Of all the drugs and chemicals tried, salol and the salicylates, especially the salicylate of soda, appeared to lessen the number and shorten the duration of the attacks. While taking these remedies the spells only came on in the morning and lasted but a few hours. Though the most effective of all the remedies used, even these ultimately lost their power.

Recognizing the hysteric semblance of the trouble, I informed the husband of the same and we tried every possible means to divert the patient's mind from herself, such as forcing her into a regular occupation and congenial companionship. For a time this promised a happy result, the patient being for awhile less melancholy and depressed; but ere long we were discouraged to see a return of the old attacks, especially the shortness of breath, the gastric distress and the occasional swelling about the feet, hands and chest. I warned the family of the possibility of a fatal suffocation from sudden edema of the glottis. By and by the attacks became so frequent that the woman refused to lie down at all at night but insisted upon sleeping in a chair. At the same time the most careful examination showed no disease of the heart or of the kidneys. The patella reflexes seemed to be slightly diminished. She complained of much weakness, coughed a trifle without expectoration, said her throat was very dry and exhibited a flushed countenance and red tongue. She revived and for several weeks seemed almost well again. On Oct. 12, 1894, she became much excited from some unknown cause. The pulse rose to 100, the temperature remained at normal.

Respirations were rapid and shallow. There was loud complaining of distress or fullness in the stomach. She paced the floor vigorously to bring on, as she said, "one of her old spells," as they at least gave her relief from the nervous distress. At odd moments she would try to remove a ring which she supposed was on her finger or to brush invisible objects out of her lap, thus revealing slight visual hallucinations. On Nov. 29, 1894, I learned that the woman had been seized one night with one of her old attacks and had died of suffocation before the physician who was summoned in the neighborhood was able to do anything. There was no autopsy. I think the diagnosis of angio-neurotic edema was perfectly justifiable in this case.

Angio-neurotic edema, first definitely described by Quincke and his pupil, Dinkelacker, is chiefly remarkable for the circumscribed swellings that appear on the face, neck and extremities, without apparent cause or previous warning. For this reason it has sometimes been called *periodic swelling, urticaria tuberosa, giant swelling*. There is almost always present gastro-intestinal disturbance, which is probably of an edematous nature like that of the exterior of the body. The mucous membrane of the larynx may be the seat of the sudden edema and so cause an alarming dyspnea or even death by suffocation.

The etiology of the disease takes cognizance of the early adult age of the patient, its more common occurrence in the male sex, the occupations which tend to excessive fatigue of mind and body, and a certain natural or acquired neurotic state of the constitution. Heredity seems to play a not unimportant rôle as shown by the surprising series of cases, all in one family reported by Osler. In five generations of this family twenty individuals were the victims. Krieger's[1] case was a young man 25 years of age, whose mother was similarly affected. Cold and traumatism are frequent exciting causes of the attacks. The former in conjunction with lowered vitality, may explain to a certain extent why, as in my own case, the trouble is so prone to appear toward the early morning before the patient awakens. Unusual muscular exercise will sometimes precipitate an attack. I have seen a hard day's shopping, the patient passing from one store to another through the cold wintry air and climbing flights of stairs, do it.

Jamieson's case, reported by Collins, affords a good picture of the symptom-group presented by my own. The patient would be perfectly well apparently, and perhaps remain indoors all day. Then going out into the open air toward evening, or taking a longer walk than usual, she would experience, without any premonition, a sudden attack of dyspnea, which would frighten and completely unnerve her. Her extremities would become cold, the perspiration cease, a slight cough arise and a feeling come on as though the stomach were suddenly distended. Generally these symptoms would be quickly followed by the characteristic edematous enlargements upon the arms and face. In a few hours the attack would pass off as abruptly as it came, leaving the patient completely exhausted. The disease is often associated with hysteria, or indeed it is not itself a hysteric manifestation. For a long time I regarded my case as one of pure hysteria, for many of the usual stigmata were present. In some cases, as in the first one reported by Collins, hysteric attacks preceded for some years the outbreaks of the edematous trouble. Irregularities of the menstrual function seem to perform as much a part in the disease under consideration as they do in true hysteria. Collins, Lewin and Quincke cite instances in which the onset and disappearance of the migratory edematous swellings bore a certain relationship to menstruation. Amenorrhea was sometimes accompanied by a monthly swelling of the ankles, lips or eyelids.

The diagnosis of angio-neurotic edema is not difficult if the characteristic symptoms are present. These symptoms are especially the local swelling of the skin, the gastro-intestinal disturbance and the nervous depression. The circumscribed edema of the skin is to be differentiated in this disease by the abruptness of its onset, its brief duration and its rapid disappearance. Any part of the body may become its site, especially the face and extremities; and in a migratory sort of a way, it may vanish from one part to quickly reappear at another. There may or may not be itching. It is strictly non-inflammatory, is always more or less sharply circumscribed and sometimes is of a slightly reddish hue. It does not pit upon pressure like ordinary dropsical effusion, but if firmly pressed with the tip of the finger it quickly rises to its former level. As a rule, it gives rise to no annoyance, though some patients complain of a local sense of burning or scalding when it begins to appear.

It is probably true that the alarming dyspnea and associated gastro-intestinal trouble are the result of the same edematous process going on within the mucous membrane. Krieger's case, a typical one, was found dead in bed one morning and an autopsy showed that death was caused by sudden edema of the glottis. Collins finds that out of seventy-two cases three showed their initial symptoms to be located in the stomach and in 34 per cent. of them all, gastro-intestinal manifestations were of sufficient importance to attract notice. The throat was involved in about 21 per cent. of all cases, a fact which should be carefully remarked as death has more than once resulted from edema of the larynx. The stomach symptoms are generally a sense of uneasiness and extreme tension, loss of appetite, enlargement of the epigastrium, colic, and sometimes profuse vomiting and intolerable thirst. Osler says the pains may become so severe at times as to require the administration of morphia. In my case there was at no time any marked pain, but an intolerable sense of fullness and of retained undigested matter, and a bloated appearance of the epigastrium. The patient was generally constipated. A colliquative diarrhea sometimes follows the disappearance of an attack. The urine is often voided in large amount, but frequent examination of it reveals nothing out of the ordinary. Complete exhaustion and nervous anxiety often terminate an attack. It was with great difficulty that my patient could be persuaded that her heart action was normal, so weak and prostrated did she feel when recovering. Between the attacks the general health is good.

Angio-neurotic edema is probably related to hysteria but the suddenness with which it comes and goes, the absence of the usual, well-known stigmata of the latter and other symptoms, all tend to prove that it is not hysteria itself. It is a functional trouble of the sympathetic and central nervous systems; but the cause and character of this trouble are, up to the present time, entirely unknown. Plausible theories

[1] Nevrologitzinskvie Obozrenie, 1889. Sajous' Annual.

and shrewd guesses have been made but nothing of a positive nature has yet been actually discovered. The disease is rarely fatal and autopsies have been exceedingly rare. It is most decidedly a chronic affection, lasting now and then a whole lifetime. It is happily only fatal in those rare cases where the edematous process attacks the mucous membrane of the larynx.

No remedy has yet been suggested for its relief. Neither the disease itself nor the attacks are amenable to any known treatment. The salicylates, especially the salicylate of soda, have given the best results in the hands of others as well as in my own. By them the intervals between the attacks appeared to be lengthened, but as for lessening the severity of the attacks or in any way actually producing anything like a permanent cure I could not see that this or any other of the long list of remedies which I experimented with, was of the least avail. Angio-neurotic edema is a unique affection which needs a great deal more study for its complete elucidation.

4544 Lake Avenue.

INTRALIGAMENTOUS FIBROMYOMA COMPLICATING PREGNANCY AT FULL TERM; HYSTEROMYOMECTOMY; RECOVERY.

BY RICHARD DOUGLAS, M.D.
NASHVILLE, TENN.

As the records do not abound with cases of complete hysterectomy for fibroid complicating pregnancy, I presume a detailed report of the following case will bear some interest:

Mrs. N., 33 years of age, a multipara; her youngest child was born five years ago. All labors normal with uncomplicated convalescence. During the year 1894 there had been some menstrual disorder, irregularity and at times profuse flow. In May, 1895, she consulted Dr. J. W. McCall for her uterine trouble; the result of the examination I report in his words. "I made a digital and specular examination, was unable to find the os uteri. The right vaginal vault and iliac region were filled with a hard tumor." The case passed from under Dr. McCall's observation and was not seen by him again until March 8, 1896, when he was called in consultation with Dr. Howard. The patient had then been in labor sixty hours, supposed to be at full term. Her physicians recognized that the pelvis was encroached upon by a hard tumor. This tumor seemed to lie entirely in front of the os uteri, completely blocking the natural channel. Recognizing the impossibility of delivering the child *per vias naturales*, I was telegraphed for, and with my assistant, Dr. Barr, and nurse reached the patient about two o'clock on the morning of March 9, seventy-two hours after the onset of labor.

That my readers may have some appreciation of the difficulties encountered in a country practice, I will say that my patient lived in a little box cabin about 12 x 20 feet, divided by a rude partition into two small rooms provided with none of the comforts and scarcely the necessities of life. Amid these surroundings her noble self-sacrificing physicians had been in constant attendance, doing all in their power for the relief of the suffering woman, with no thought of pecuniary reward and with little hope of being able to save the patient.

Labor had been most violent and exhausting, but for the last twelve hours uterine contractions had almost ceased.

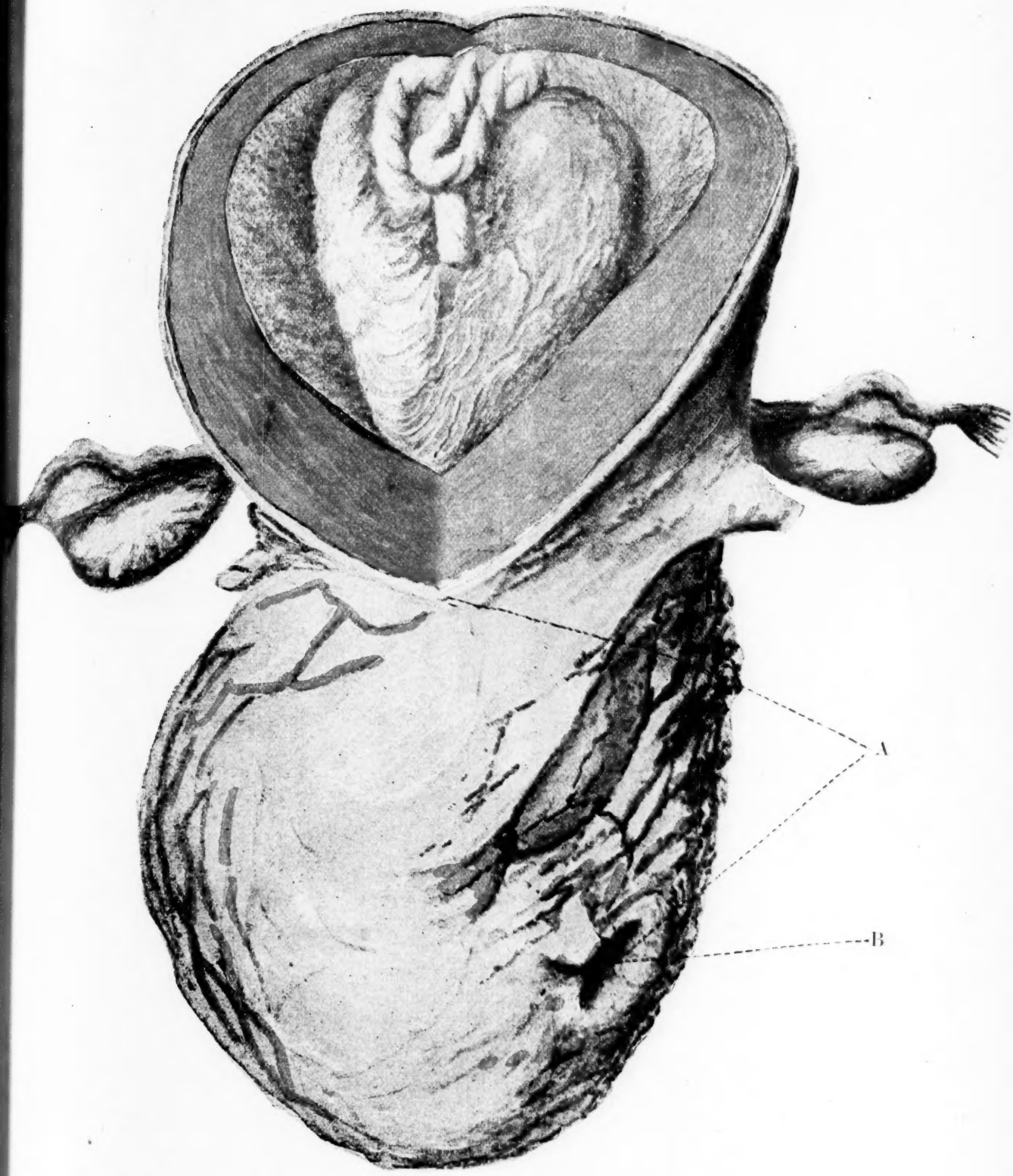
Notwithstanding the protracted labor the patient appeared in very good general condition. Her pulse was regular and about 120, temperature 101 degrees; patient remarkably quiet and composed. Physical examination of the abdomen revealed rather an unusual morphology. The abdomen was asymmetrically distended, unusually broad in its transverse diameter, widely bulging in the flanks, somewhat flat or depressed in the middle line. The greatest enlargement appeared on the left side and above the umbilicus. On palpation a round and very hard swelling about the size of an adult head could be detected in the right side. The center portion of the abdomen was soft, elastic and compressible. In the left side we could easily determine by manipulation a vertex presentation, the head resting in the left iliac fossa, occiput to the left, dorsum of child to mother's left side, a first position if in axis of pelvis. There was no uterine contraction in response to our manipulation. Fetal heart sounds could not be detected upon auscultation; the patient had not felt fetal movements for twelve hours.

Vaginal examination revealed a capacious vagina; the entire pelvis was filled by a smooth, hard, inelastic tumor which was firmly fixed in the pelvis. Every effort to raise it upward was ineffectual. The os uteri was reached with the greatest difficulty; it lay very high up out of the true pelvis and to the extreme left side; could not reach the os sufficiently well to pass the finger beyond the margin of the right border of the cervix.

Diagnosis.—Uterine fibromyoma springing from the supravaginal cervix and the right side of the body of the womb firmly wedged in the pelvis, filling that cavity, displacing the uterus and occupying the hypogastric right inguinal and lumbar regions of the abdomen; pregnancy at full term, amniotic fluid escaped and the child in all probability dead. Complete uterine inertia from exhaustion and inefficient contraction due to presence of the growth.

After consultation with my associates it was determined that an operation was immediately demanded and that that operation should be in all probability a complete hysterectomy. We discussed the propriety of Cæsarean section, but the idea of leaving so large a tumor with the dangers incident to the operation and puerperal state, were against such an incomplete procedure. Furthermore, knowing the uterus to be in a state of inertia, hemorrhage after Cæsarean section appeared to our minds a danger of great moment. Therefore determining upon hysterectomy as the only means of saving our patient's life, and gaining her consent to anything that we might deem best, we prepared with such poor accommodations as the place afforded for the undertaking.

Preparation.—An ordinary kitchen bench with the filth of ages upon it, covered however by a clean sheet, was the improvised operating table. The bed served as a table for my instrument trays, one bowl and pitcher for sponge basins, and two dimly burning lamps gave us all the light we had. Fortunately, my instruments, ligatures, sponges and towels had all been thoroughly sterilized and we managed to protect them from contamination. Boiled water in abundance was supplied. Notwithstanding the urgency of the case, much time was spent in careful aseptic pre-



FIBRO-MYOMA COMPLICATING PREGNANCY AT FULL TERM. DR. RICHARD DOUGLAS' CASE.

A, Cervical canal, 4 inches long. B, Os uteri. Reduced one-third.

ligated. All these ligatures and those upon the cervix with a certainty predict a perfect cure, as it is

paration of the patient, and after asepticizing ourselves as thoroughly as conditions would admit, the patient was anesthetized with ether by Dr. J. H. McCall.

Operation.—The abdomen was opened by free incision from well above the umbilicus to the pubes. The distended uterus was raised up and as well as its tumor would permit, out of the abdomen. A hot towel was placed over the intestines and four provisional sutures were placed in the upper portion of the wound, crossed and given a half turn so as to draw the wound together and still further protect the intestines. The uterus was observed to be somewhat rotated upon its axis, that is, the right border presented to the center. A large rubber dam was now placed around the uterus and made to hug it very closely and fixed with a safety pin to protect the cavity from blood or escaping fluid. From the location of the tumor it was impossible for us to encircle the uterus with a tourniquet. Therefore my first assistant, Dr. Barr, grasped the cervix as low down as he could with both hands making firm pressure so as to control hemorrhage. The uterus was opened as in Cæsarean section, the child was seized by its breech and removed. It was observed to gasp once. Waiting a few moments the cord was severed between catch forceps and the child intrusted to a physician who made unsuccessful efforts to resuscitate it. The uterus remained perfectly flabby, no contraction whatsoever, and yet the hemorrhage was not very profuse, a few hot sponges placed in the line of the wound controlled it. As we comtemplated removing the uterus, the placenta was not disturbed. The assistant still holding the uterus to control bleeding, I now proceeded with the hysterectomy. The tumor was found to be an intra-ligamentous fibroid and it lifted the peritoneum entirely from the floor of the pelvis. Ligating the right infundibulo-pelvic ligament, catching the tube and ovary with pressure forceps, I cut between. With separate ligature the right round ligament was secured. The Fallopian tube and round ligament were at least four inches apart, that is, the broad ligament was expanded to this extent by the tumor. I next split open the broad ligament on the top of the tumor by an incision parallel to the tube and without difficulty peeled down the peritoneum before and behind and enucleated the tumor, which involved the right side of the body of the cervix of the uterus. Lifting the tumor up I felt distinctly pulsating the uterine artery just as it ascended to the cervix. Isolating it fairly well its deligation was securely effected. Up to this point in the operation I had not come in contact with the bladder. With the tumor now enucleated, attached only to the uterus and all vessels upon that side secured, I proceeded in the usual way with the left side. Here I encountered the greatest difficulty. After ligating the ovarian vessels the tissues were so hypertrophied, the veins so enormously distended and everything distorted, I was not quite sure of my anatomy; but dissecting the bladder from the anterior surface of the uterus and carefully avoiding the ureter I finally succeeded in ligating *en masse* a lump of parametric tissue in which was concealed the uterine artery. I now separated the uterus from its vaginal attachments and quickly removed the entire organ with its attached tumor and contained placenta. The bleeding was very profuse from numerous points, particularly from the anterior vaginal artery, and all of these were grasped with forceps and then securely ligated. All these ligatures and those upon the uterine artery were left long and pushed into the vagina; the others were cut short. The open broad ligaments were closed with silk sutures, the pelvis thoroughly cleansed and packed with gauze, the free end of which was carried into the vagina. The abdominal wound was closed in the usual way. The shock from the operation was comparatively slight considering the time, one hour and fifteen minutes, and the many difficulties we had to contend with. The patient had reacted thoroughly in two hours after the operation and expressed herself as comfortable and determined to get well. There is little to relate of the after-treatment of the case. Thanks to the assiduous attention of her physicians, Drs. Howard, McCall and Cox, and her excellent constitution, she made a quick recovery and is now a perfectly well woman.

CATARRHAL DISEASES OF THE NOSE AND THROAT.

BY J. D. ALBRIGHT, M.D.
AKRON, PA.

To any careful observer, and all physicians should be such, it must have become apparent that catarrhal diseases of the nose and throat are becoming more and more frequent and play a most important part in the practice of every physician who gives more than passing attention to their treatment.

There seems to be a prevailing opinion in the minds of many of our profession that the correct treatment of these diseases involve the use of special and expensive instruments and require a more than ordinary degree of skill to use them properly, so that these cases are allowed to drift to the specialist, who, by the way, is often no more than a physician who keeps posted and has the courage to apply his knowledge.

By a moderate amount of study and diligent practice, by perseverance in the use of the methods at hand the general practitioner may overcome imaginary difficulties that seem to stand between him and success and he will be richly rewarded for his time and labor so spent. The instruments that may be called necessary are: A good light, a head mirror, a nasal speculum, a tongue depressor and a laryngeal mirror. With these as aids in diagnosis, if the examination is conducted carefully, we are certainly in a position to diagnosticate the existing conditions and therefore treat them intelligently. Among the laity there is much termed "catarrh" that bears no relation whatever to it, and in this disease more than in any other these people glory in making their own diagnosis, so that the physician is often taken off his guard and is led to treat catarrh on the strength of his patient's words instead of a careful examination. We have different forms of this trouble: 1, simple chronic rhinitis; 2, hypertrophic rhinitis, and 3, atrophic rhinitis.

Simple chronic rhinitis.—This is a simple inflammation of the mucous membrane of the nasal cavity, without any structural changes. Its only symptom is a discharge of mucus or sometimes, when of long standing, muco-pus. On examination you will find a congested membrane, with here and there yellowish or whitish spots of mucus. In the vault of the pharynx where there is much glandular tissue there will be a swelling, giving them a turgid appearance, and the secretion which covers them will be found to be more tenacious. When these cases seek a physician, he can with a certainty predict a perfect cure, as it is

only in the first stage, simple rhinitis, although of perhaps quite a long standing, getting no worse nor yet any better. The treatment for this condition is as follows: Cleanse the mucous membrane thoroughly with warm water, applied by means of a douche, such as the Bermingham, after which by means of the same douche or an atomizer, make an application of the following: Glyco-thymolin (Kress) one part, water distilled, three to six parts. This mixture should be used twice daily. It will be found best to use six parts of water for a beginning and gradually strengthen until only three parts are used. As before stated, there will very seldom be more than this treatment required in this form of nasal catarrh, as they at once proceed to recovery.

Hypertrophic rhinitis.—A certain number of cases suffering with simple rhinitis will neglect taking treatment until they have developed our second class, chronic hypertrophic rhinitis, and will then consult the physician. Here, on examination, a different aspect presents itself, as we have first, marked structural changes, a proliferation of all the normal mucous membrane, making it of increased size, therefore called hypertrophic, enlarged. The glands in the vault of the pharynx are also enlarged, subject to the same influence as the membrane of the nose. The secretions are now thick and tenacious, which with the enlarged membrane occludes the air passages, causing difficult breathing, causing the voice to be nasal in character and causing the patient to become concerned about himself, perhaps for the first time. In the treatment of this condition, all that I have said on the previous stage applies to this one, with more added. Do not forget to cleanse the passages; this is the fundamental principle of successful treatment, and as such a saline solution, such as glyco-thymolin (Kress), is practically the best remedy for the purpose. It cleanses and it heals, it causes a proper degree of healthy stimulation, it acts as an antiseptic and is a most efficient deodorizer. As the comfort of the patient is a desideratum, the use of a 5 per cent. solution of cocain applied to the turgescent membrane is often advisable, covering the membrane which covers the inferior turbinated bones, in order to allow more freedom in breathing. This may be done once or twice daily by the patient, at different times as occasion demands. The action of cocain on these tissues is well known. The cleansing solution and the cocain applications the patient can well himself apply, but the following application should be made in the office of the physician, as it can be more thoroughly accomplished, and I am of the opinion that the mind influence over the patient is better when he must daily visit the physician; it reminds him that he is under treatment and thus prevents his neglecting the home treatment. For the following remedy a good atomizer should be used, with a nasal tube, and a long tube for the pharynx, and an application should be made once daily, while necessary. This will cure. Iodin 3 grs., potass. iodid 10 grs., zinc sulpho-carb. 15 grs., glyco-thymolin (Kress) 1 oz., aqua q. s., ad 4 ozs. Mix. Sig.: Use as above stated. This treatment kept up for a month, or perhaps longer if a serious case, will do its work well.

Atrophic rhinitis.—This form is caused at times by neglecting the disease when in the hypertrophic stage, and is essentially a death of the tissues. The tissues were crowded to death by the enlargement. Here there is plenty of room in the nasal cavity, there is no interference with the voice or breathing, the secretions are hard and in the form of crusts, the posterior wall of the pharynx will be seen to be dry and shiny, the sense of smell is interfered with, sometimes destroyed, there is at times pain in the frontal sinuses, or in other parts of the head, the patient is irritable and very sensitive to atmospheric changes.

These cases are very often afflicted with a fearful odor, very often on this account do they consult you. Our words of encouragement to the patients suffering with the two varieties preceding must now cease, for unfortunately the cure of atrophic rhinitis is in most cases beyond us; be careful then what you promise your patient. Promise nothing but relief, and if occasionally one case or another leaves you satisfied that you have cured him, restored his sense of smell or hearing do not become elated, for if you thus set up your standard you will very often meet with bitter disappointment.

The indications we wish to meet in these cases to afford our patients relief are two-fold, cleansing and disinfecting, and I may add keeping them thus and attempting to regenerate the atrophied membrane, which as before said can be but very seldom hoped for. The first indication of cleansing and disinfecting is met by daily washings with the solution before given of water and glyco-thymolin, three of the former to one of the latter, so as to remove all offending secretions. Occasionally these crusts must be removed by means of a forceps, which if necessary must not be neglected. A spray of liquid vaselin to which a little camphor has been added, after these washings, will be agreeable to the patient, as it will prevent the annoying dryness of the air passages, and I doubt not but that it is of some remedial value.

For the purpose of stimulating and regenerating the atrophied mucous membrane there are recommended, salicylic acid, galangal root, nitrate of silver, etc., blown into the nose by an insufflator, but I can not but repeat myself and say that this will very seldom be accomplished, and he who is careful will never promise nor yet expect it. Regarding the internal treatment of catarrh, I have never seen any good result from its use and I think the consensus of opinion of the entire profession, the regular, hold that it is a local disease and as such requires only local treatment. Constitutional defects must be recognized and treated, but the remedies employed have no effect on the catarrh, *per se*.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

BY EUGENE FOSTER, M.D.

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND STATE MEDICINE AND DEAN OF THE FACULTY OF THE MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA, AUGUSTA, GA.

(*Continued from page 862.*)

PROPOSITION 10.

If the operation of vaccination be done with due regard to the rules of modern aseptic surgery, with due regard to the health of the individual vaccinated, and proper precautions be observed in obtaining and using vaccine lymph, there need be no apprehension that vaccination will injure health or communicate any disease other than vaccinia.

Antivaccinists seriously contend that: "Vaccination propagates syphilis, consumption and hereditary diseases, which appear years afterward at their appointed time. It produces immediately erysipelas, and aggravates the disorders of childhood, destroying the germs of the teeth during teething. It

is especially productive of mesenteric and glandular diseases, and lies at the foundation of the shameful mortality of whooping cough."

Mr. P. A. Siljestrom (who the *Vaccination Enquirer*, the journal of the antivaccinists, says is "one who has mastered the vaccination question") states, "It has been proved that disease (especially erysipelas and syphilis) and death have not infrequently been observed to result from vaccination."

Mr. P. A. Taylor, M. P., of England (another leader of the antivaccinists) says, "Not tens but hundreds of thousands of persons in this country (England) have mourned the death or ruined health of their children through the results of vaccination."

The above are fair samples of objections raised against vaccination by antivaccinists, and if it can be shown that either or all of the above assertions be true, then the medical profession of the civilized world has for the past century been most grossly careless and ignorant in accepting and recommending vaccination as a prophylactic against smallpox.

Let us, then, once again carefully examine these objections, and decide if or not they be well founded.

As preliminary to a full consideration of these points I submit, and endorse, the following from John Simon of England, one of the ablest, most renowned and conscientious sanitarians and medical philosophers of this century—a man who has more exhaustively, ably and impartially investigated the vaccination question than any other physician living or dead. Simon says:

"Is properly performed vaccination, then, an absolutely inoffensive proceeding? Not at all, nor does it pretend to be so. The very meaning of the thing is, that it shall artificially and designedly produce a transient and trifling indisposition; that for some days the infant shall be uncomfortable with a sore arm and a slight irritation of the adjacent axillary glands, and a perceptible amount of general feverishness. Within the limits of this description, one child may be a little more, another a little less, inconvenienced; but those limits are rarely exceeded. And if it can not strictly be said that the immediate effects of well-performed vaccination never exceed the intentions of the vaccinator, at least it may be affirmed that any permanent injury resulting from it is an accident barely known in the practice of surgery.

"Persons hostile to vaccination allege against it, that it produces eruptions on the skin and glandular swellings; and others, not unfavorable to the practice, doubt whether this to some extent may not (and especially as regards unhealthy predisposed scrofulous children) be a true allegation.

"Vaccination might afford to bear these imputations. For, to what do they amount? Were they ever so true, the alleged evil, even to the sufferer, would be little in comparison with his gain; and the total amount of such evils, compared to the social advantages of vaccination, would, literally speaking, be too small to appreciate.

"But in fact, the imputation is—at least generally—erroneous. There is in it again that common fallacy of calling whatever happens after an event its effect. Propter, quia post. The infant is commonly vaccinated at three or four months of age. Thus whatever physical or moral evils belong to human life are very likely to have been preceded by vaccination; and it is not extraordinary that, especially by ignorant persons, this operation should often be charged with producing incredible results. When you consider, too, that the few months after vaccination include events which are very critical to infant life, you will see what frequent room there must be for misconception. Even to the healthiest and best cared for of children, weaning and teething are not perfectly safe and comfortable processes; to delicate and ill-nurtured children they are often fatal; to vast numbers they occasion, sometimes during many months, distressing or alarming symptoms. Such symptoms, I need hardly tell you, affect both vaccinated and unvaccinated. They have been known as incidental to infancy from periods long anterior to Jenner's existence. Now, an extremely frequent one of such symptoms is an inflammation of skin (known by the technical name of eczema infantile) producing on the child's face and head, or on other, perhaps many or most parts of the body a dense eruption of little pimples, which presenty convert into an itching and discharging surface so much of the skin as they occupy; and since irritations of the skin are peculiarly apt to propagate themselves in the direction of the return current of the circulation of the blood to certian organs, the so-called lymphatic or absorbent glands which are subsidiary to this circulation, so it very commonly happens that more or less irritation and swelling of these glands will accompany that eczematous eruption; and that, for instance, the child who has the eruption about its head and face (which are among the most usual seats of the unsightly disease) will often be still further disfigured by glandular swellings in the neck. Though I have spoken of this infantile complaint as incident to the time of teething and weaning, yet in fact it may arise at earlier periods of life, even within a few weeks of birth, and, of course, before vaccination as well as after it. Indeed, frequently it is a reason for which vaccination is postponed; and perhaps I give you no readier means of estimating how little vaccination has to do with its occurrence, than by telling you, first, that before the discovery of vaccination smallpox inoculation was charged with producing it; and, secondly, that in 1714, when smallpox inoculation was yet unknown in England, Dr. Daniel Turner expressed himself in the following terms: 'Among diseases of infants and young children scarce any attends more frequently that pustulary or scabby eruptions in several parts of their bodies, as in the breech, but more especially their foreheads, brows and other parts of the face, which we find oftentimes overrun with dry and crusty scabs.'

"The circumstances under which both infantile eczema and glandular swellings arise are familiarly known to the medical profession. To say that properly performed vaccination can have directly to do with them, that it can directly cause general eczema, or directly affect any glands but those which it is intended and expected to affect, would be an assertion not warranted either by practical experience or by any pathologic probability. To say that indirectly it may do so, that in the very few instances where it produces excessive results, the disturbance that, under such very exceptional circumstances, it may for the time of its operation predispose the child to this complaint and to that, may excite the scrofulous child to show its scrofula, and the eczematous child to show eczema, these are assertions which may or may not be true; which are more easily made than either established or refuted; but which, if admitted in their utmost scope, really allege against a cold in the head, a cut finger, an undigested meal, or any other one of the thousand minor accidents of everyday life.

"So much for what has been alleged against properly performed vaccination, against such vaccination as alone ought to prevail in any country where the State requires its performance. So much for the drawbacks which have falsely been said to detract from its inestimable advantages, and the dangers which, with almost equal fasehood, have been said to attend its performance.

"It is less easy and less necessary to dispose of what may be said against ill-performed vaccination; understanding in this phrase not merely such vaccination as is done with an unskilful hand, for commonly the worst effects of clumsiness is only that the operation fails; but especially referring to such vaccinnation as is done without due inquiry into the health of the child to be vaccinated, or without due care for the quality of the lymph to be employed.

"If local scandals have arisen against vaccination, and if some prejudices against it seem to have in them a show of reason, those are the sources from which such serious evils have come. All that belongs to the mere manual trick of vaccination is learnt from a minute's teaching and an hour's practice; but not so easily the philosophy of the procedure, or the precautions which are requisite to make it harmless and useful. From Jenner onward, all great masters of vaccination have urged that its merits will always appear proportionate to the merits of the performers; that if sickly children are vaccinated without due regard to their actual condition of health, children teething, and the like; or if children, healthy or unhealthy, are vaccinated with improper material, the results must be at least unsatisfactory, and possibly dangerous. And all competent persons accordingly recognize that one who would vaccinate must thoroughly study these things.

"Especially as regards the quality of vaccine lymph, the careless or uneducated vaccinator is using a dangerous weapon. It is only during part of the course of a vaccine vesicle that its lymph is suitable for further vaccinations; for after a given moment, at which the contents of the vesicle possess their maximum of simple contagiousness they tend more and more toward the quality of common inflammatory products; and matter now taken from the vesicle is no longer the simple agent of a specific infection, but both has less efficiency for its real purpose, and is specially able to produce other undesired results. A danger of somewhat similar kind is that of taking lymph from vesicles which already have been accidentally ruptured, or where from any other cause, local or constitutional, their specific fluid is likely to have been modified by common irritative processes. Still more critical changes occur in lymph when removed from the body, unless appropriate means be taken to preserve it; for under the influence of air and moisture it tends, like other dead organic matter to putrid decomposition; and inoculation with it, when thus changing,

can hardly be more useful or less dangerous than a casual scratch inflicted in the dissecting room. According to the usual practice of vaccination, error is less likely to be committed in this particular than in the one first mentioned; for, when the operation is not performed from arm to arm, use is very generally made of lancets or ivory points on which lymph has been allowed to dry. Under this system (at least in our climate) the matter is almost secure from change; and there is little room for such accidents as might arise from failure in those delicate procedures by which lymph is sometimes kept moist for use. But the danger of taking matter from irritated vesicles, and and from vesicles at too advanced a period in their course, is one which circumstances render frequent; and there is reason to believe that, in at least a very large proportion of those cases where abnormal effects have resulted from so-called vaccination, it has been the employment of this ambiguous irritative matter which has occasioned the mischief and scandal.

"Suspicions are sometimes expressed that a slovenly vaccinator, careless in his choice of lymph, may thus cammunicate to one child the constitutional or local disease of another. If this be true it were nothing against vaccination. It is no argument against bread that alum constipates the bowels; still less is it an argument against quinin that some drunken shop-boy may give one strychnin instead of it. And, without intending disrespect to gentlemen whose opinions on this point may be less decided than my own, I must say that I believe it to be utterly impossible, except under circumstances of gross and punishable misconduct, for any other infection than that of cowpox to be communicated in what pretends to be the performance of vaccination. A vaccinator must forget his duty in more than one particular; he must be indifferent both to the feelings of others and to the social progress of the great good which he claims to administer, if he affronts the natural antipathies of those who bring their children to be vaccinated by drawing the lymph for vaccination from the vesicles of diseased subjects. And, practically speaking, I can conceive of no circumstances in this country which justify a departure from the rule (recognized by the medical profession as unreservedly as it is desired by the public) that lymph be taken only from healthy subjects.

"But, supposing that, in breach of this rule, lymph be taken from Jennerian vesicles on the arm of a subject suffering constitutional disease, what then? On the assumption only that it be a true Jennerian vesicle at the proper period of its development, there are cogent reasons for believing that such vaccination can produce none but normal results.

"There is one simple mass of experience, which, to my mind, seems conclusive. It has been proved on a large scale that vaccin lymph, taken from persons actually suffering from smallpox, conveys to those who are vaccinated with it no other than the vaccin infection. This most remarkable truth has been established, I say, on a large scale; for, not once or twice, but at least hundreds of times, something to the following effect has occurred. A patient has been vaccinated a little too late for protection. Warned of his danger he has had recourse to vaccination when already smallpox was in his system; and (under a law which expresses the intimate affinity of these two agents) the operation of the inhaled variolous contagion, and the opperation of the inoculated vaccin contagion, have proceeded simultaneously on his person; the former producing the general eruption of smallpox, the latter producing at the vaccination spots characteristic Jennerian vesicles. And with the lymph of these vesicles, again and again, successful vaccination has been performed. Again and again it has been shown that such lymph is capable only of communicating the Jennerian infection.

"Since then it is a quite unquestionable certainty that, even the system is drenched with that subtlest infection of smallpox, the Jennerian vesicle preserves its own contagion pure and isolated, the argument may reasonably be extended. And, even if there were no evidence in relation to other diseases, this analogy would have rendered it eminently improbable that any, the most infectious, of their number could admix its contagion with the specific products of cowpox. Indeed, so definitely and so constantly characterized are those local changes which different morbid poisons severally and specifically produce, that to say of a given phenomenon 'this is a typical Jennerian vesicle' is, I believe, tantamount to saying this is a vesicle, which only one modified influence can produce, which no second influence can concur in producing, and in the contagion of which no second principle of infection can possibly reside.

"Turning, however, from these general considerations, I may inform you that the diseases which it has been suspected that vaccination might communicate have chiefly been scrofulous and syphilitic complaints, and various eruptions of the skin. In all but a very limited number of these cases it may be conclusively answered that the suspected mischief is physically impossible, Scrofula, for instance, and most skin diseases, even when for experiment their specific discharges and other products are deliberately inoculated on the healthy, are absolutely incommunicable by contagion; and it is inconceivable that the vaccin lymph, even if it could include these products, would alter the essential condition of their nature. Of some others among the diseases referred to, it may no doubt be admitted that certain of their products are infectious; but then again comes the question (which is already by anticipation almost disposed of) whether the constitutional existence of such diseases can qualify the contents without modifying the characteristic development of a true Jennerian vesicle.

"Experiment, where it has been deliberately addressed to the solution of this question, has invariably answered, no; and such experiment is worth many arguments."

After quoting from M. Taupin, Simon says:

"I am not aware of any counter experiments suggesting different conclusions to those which are expressed and justified in the preceding passage. They assert for vaccin lymph the principle which Dr. Mead a century ago asserted for the virus of smallpox inoculation: It is more material into what kind of body it be infused, than out of what it be taken. Indeed, in the whole list of diseases syphilis is the only one to which serious suspicion will attach; and, in regard to its communicability by the lymph of a true Jennerian vesicle, various other observers confirm the accuracy of M. Taupin's result.

"Moreover, Professor Sigmund of Vienna (whose researches on everything relating to the inoculation of syphilis have been on a very large scale) has added to M. Taupin's results, one which quite in a different manner, is equally against the possible invaccination of syphilis. In an official report on the division of the hospital over which he presides (Aertzlicher Bericht des Allgem. Krankenhauses; Wien, 1855) he relates experiments to show that syphilis in its inoculable form prevents, within the sphere of its infection the simultaneous formation of a vaccin vesicle. The discharge of chancre (in which form alone syphilis is universally recognized to be inocuable) has been designedly mixed, as by nature it never could be mixed, with ordinary vaccin lymph; and insertion of this compound poison in the skin has been followed only by the ordinary local results of syphilitic infection. No Jennerian vesicle had been formed. No signs have existed of any possible combination of the two infections. Dr. Friedinger, who conducted these important experiments in Professor Sigmund's wards and under his observation, has also communicated their result to the society of surgeons at Vienna.

"It is unquestionable, however, that cases are recorded in which the lookers on (sometimes including a medical practitioner) have believed syphilis to have been communicated by vaccination. A moment's reflection suggests that in such cases there must generally be sources of fallacy, which render them, in contrast with experimental results, almost valueless for instruction. When a child is born with a heritage of syphilis (a very frequent incident, if the parents have been suffering from that disease) the characteristic symptoms commonly do not appear till some weeks after birth. And then the scandal discloses itself. Now, among persons with any sense of shame, the knowledge that one had transmitted syphilis to one's child would always be a sore subject. There would be strong temptations to employ false pretense. Not only would parents often conjointly wish to disguise from their medical attendant or from members of their household, the real explanation of the child's ailment, but also, not unfrequently, one parent would wish to conceal from the other that the origin of the disease had been a conjugal infidelity. In respect even of unmarried people, every surgeon knows what utterly false, farfetched and absurd explanations are given of syphilitic symptoms primary and secondary; and it requires little experience to imagine how much more pertinacious will be the demand for excuses, and how much more active the supply of falsehood, under the complicated circumstances of connubial syphilis. Accordingly it is a matter of surprise that vaccination has not almost generally been pitched upon by persons in search of an apology for their syphilitic children. But in truth even such allegations against it have been few: and their paucity (assuming them all to have been made in good faith) would be a strong reason for regarding them with mistrust; for surely if syphilis could be diffused by the vaccin lymph of children with an hereditary taint of that disease, this possibility must long ago have been made evident on a scale far too considerable for question.

"Among the scanty number of recorded cases in which such allegations have been made, there are, however, some in which, so far as I can judge, it seems almost certain that a person

pretending to vaccinate did really effect a syphilitic inoculation. Properly to estimate these grevious instances of malpractice, two considerations must be adverted to: 1. To the already quoted negative results obtained by Taupin and many other observers in their experimental inoculations of lymph from the true Jennerian vesicle of syphilitic children. 2. To the fact that secondary syphilis itself is very possibly not communicable even by direct inoculation of matter from the ulcer and eruptions which it occasions; for many of the ablest experimenters in Europe declare that in hundreds of trials they have never once succeeded in thus conveying from person to person the slightest infection of syphilis. And, regard being had to these considerations, it becomes almost certain that in the cases referred to the matter of chancres, the matter of primary syphilis was used instead of vaccin lymph by the vaccinator, a mistake (however it may have occurred) of so gross and criminal a nature that the medical profession would feel no sympathy for the person through whose neglect or incompetence it happened.

"But in coming to cases of this description there is no longer question of the merit of vaccination. If recorded instances of the kind, instead of being so few that you count them on your fingers, were of innumerable frequency, they would make no argument against vaccination. Only they would, if possible, render more obvious than it is the expediency and duty of providing that this great self-defense of nations against pestilence be not ignorantly and recklessly administered.

"Here, indeed, is the whole gist of the matter. Earlier parts of this letter have shown that by vaccination, properly administered, the once enormous fatality of smallpox may be reduced to nothing. The present section justifies a conclusion that against this vast gain there is no loss account. Of the various alleged drawbacks to such great advantages the present state of medical knowledge recognizes no single trace. Jenner's discovery, properly utilized, has been a pure blessing to mankind, an unmixed addition to the strength and happiness of nations.

"To say of vaccination that it has sometimes been ill-administered; to say that under the pretext of its administration harm has sometimes been given instead of good, poison instead of antidote, is to speak, not against it, but, whether rightly or wrongly, against its administrators. The vaccinations of Europe are now counted annually by millions. It may be vain to hope that every lancet shall be used with equal skill and equal carefulness, or that all populations shall be equally anxious to render the operations successful; but Medicine at least has contributed her share in showing that, subject to these conditions, smallpox need cause no further fear nor its antidote be accepted with mistrust."

So much for the general principles controling the question of objections to vaccination presented by John Simon.

(To be continued.)

Report of the Surgeon-General of the Army for the Year Ending June 30, 1896.

The following is an abstract of Surgeon-General Sternberg's report, omitting financial statements, special reports of medical officers, statistic tables and other matters of detail:

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
WASHINGTON, D. C. Sept. 8, 1896.

Sir: I have the honor to submit the following report of my administration of the duties of this office during the past year. Beside the health of the troops and the sanitary condition of the various military posts, this report relates to certain duties imposed upon the Surgeon-General of the Army by the Revised Statutes of the United States and by Acts of Congress making appropriations to be disbursed under his direction.

Among the expenditures authorized by Congress for the year ended June 30, 1896, were those for artificial limbs and their commutation, for appliances for disabled soldiers, for trusses, for the support and treatment of destitute patients in the city of Washington, D. C., for the Army and Navy General Hospital, Hot Springs, Ark., for the Army Medical Museum and Library of the Surgeon-General's Office, for the construction and repair of hospitals, and for medical and hospital supplies for the use of the Army.

Artificial limbs and their commutation.—During the fiscal year ended June 30, 1896, 21 artificial legs were furnished and commutation was paid in 101 cases of amputated leg, in 69 of amputated arm, and 13 of amputated foot. Commutation was paid also in 2,402 cases in which the use of a limb was lost.

It is believed that the appropriation of $575,000 for the year ending June 30, 1897, will suffice to cover the benefits accruing to the pensioners during the current year.

The amount required for the year ending June 30, 1898, will amount to about $183,000. This estimate is based on the fact that of the appropriation of $194,000 for the fiscal year 1895, $184,192.55 was disbursed during that year, and $7,610.74 during the year 1896, making a total of $191,803.29 disbursed from the appropriation. As these benefits recur every three years, an appropriation will be required for the year ending June 30, 1898, approaching in amount to the sum expended from the appropriation for the year ended June 30, 1895. The actual amount that will be required will depend on the number of those paid in 1895 who are found to have survived the interval of three years. As well as can be learned from the statistics, the death rate is about 1.6 per cent. annually, or 4.8 per cent. for the three years. The estimate for the fiscal year would, therefore, be the amount paid in 1895 lessened by 4.8 per cent., or $183,000.

Appliances.—The number of appliances issued to disabled soldiers during the year was 162, for which was disbursed a total of $1,245.22

Trusses.—There was expended in furnishing and fitting trusses to disabled soldiers under Sections 1,176 to 1,178, Revised Statutes of the United States, and the Act of March 3, 1879, the sum of $7,699.70. The number of trusses issued and fitted during the year was 1,106.

Providence Hospital.—The Act of Congress approved March 2, 1895, appropriated $19,000 for the support and medical treatment of destitute patients in the city of Washington, D. C. The amount of relief afforded under this appropriation was equivalent to the treatment of 114 patients throughout the year.

Army and Navy General Hospital, Hot Springs, Ark.—Twenty-five officers and eighty-five enlisted men were treated during the year. The special advantages afforded by the Government in this General Hospital in the treatment of the diseases mentioned in Circular No. 16, A. G. O., Dec. 8, 1892, do not seem to be appreciated properly by medical officers of the Army. It is equipped with all the latest and best appliances for the treatment of patients by hydrotherapy, electricity, massage and Swedish movements. No sanitarium or private establishment at Hot Springs offers any such advantages. It is believed that if cases suitable for treatment at the Springs were sent earlier in the progress of the disease many serious complications might be prevented and recovery effected in a larger percentage.

Army Medical Museum.—The total number of specimens received during the year was 890; number on hand June 30, 1896, 33,746.

Library.—The total number of books in the Library is now 120,344; of pamphlets and theses 199,600. Volume i, new series, of the Index Catalogue includes the letter "A" and forms a volume of 828 pages. It is now in the hands of the binder and will shortly be ready for distribution. The manuscript of Volume ii, new series, is in the course of preparation for the printer, the usual appropriation having been made for this volume.

Medical and hospital supplies.—The approximate value of the medical supplies actually issued during the fiscal year ended June 30, 1896, is $97,697.38.

Advantage was taken of the preparation of the new Manual for the Medical Department of the Army to revise the Supply Table included therein. Many new remedies were added and the allowance of others was increased where experience had shown this to be advisable. Several recent medical works have been distributed for the use of medical officers. Appliances for operating in accordance with the requirements of aseptic surgery have been issued to sixty-five post hospitals. The facilities for prompt and successful surgical relief are now much more satisfactory than they have been. Portable bath tubs on wheels, adopted to giving a patient a bath at his bedside in cases of fever, have been issued to most of the posts.

The hospital corps.—There were in the service June 30, 1895, 116 hospital stewards, 82 acting hospital stewards and 530 privates, making a total of 728 men. The loss during the year by discharge, transfer, retirement, death and desertion amounted to 270 men and the gain to only 249 men, a net loss of 21 men. There were, therefore, in service at the close of the last fiscal year 707 men, of whom 106 were hospital stewards, 94 acting hospital stewards and 507 privates, the quota under existing regulations being 741.

The appropriation bill provides that no appointment to the grade of hospital steward shall be made until the number of such non-commissioned officers in service is reduced below 100. As there are now 106 in the corps it is not likely that an examination for appointment to this grade will be held for some

time to come. Examinations for the position of acting hospital steward were held in November, 1895, and May, 1896. The successful candidates numbering 31 out of 43 recommended for examination have been detailed to duty in their new positions.

The issue of hospital corps knives and side arms has been discontinued. Members of the corps may, however, by Circular No. 2, Headquarters of the Army, A. G. O., Feb. 6, 1896, be furnished with firearms during Indian wars or when left with sick or wounded under circumstances which justify the expectation that their rights as non-combatants will not be recognized.

The new litter, model of 1895, is now being issued to military posts. A new edition of the Drill Regulations of the Hospital Corps was necessitated by the adoption of this hand litter. The litter slings of the hand litter previously in use were attached to the handles of the litter, and in the drill provision was made for the disposition of the sling in all movements. By detaching the sling and making it a part of the equipment of the bearer to be worn over the shoulders with the ends tucked under the belt in front when not in use the drill has been much simplified. When the litter is to be raised or lowered the bearers have merely to slip the loops at the free ends of their slings on or off the handles. Special instruction in the duties of litter bearers and in the method of rendering first aid to the sick and wounded is now given to all enlisted men of the army by their company officers in accordance with G. O. No. 9, Headquarters of the Army, March 13, 1896.

A change has recently been made in the method by which certain of the recruits for the Corps are to be instructed in their special duties. It consists in the disbandment of the company of instruction at Fort Riley, Kans., and the distribution of the men constituting the company in small detachments at selected posts. Hitherto the expense involved in transporting men to a distance has prevented the posts on the Pacific Coast and on the Northwestern frontier from being supplied with men educated in the company of instruction. By distributing the men and educating them hereafter in small detachments, each department will have its quota of men under instruction from which assignments may be made with less expense for transportation than if Fort Riley continued to be the center of distribution. Emergencies in the East will be met as heretofore, by drawing on the company of instruction at Washington Barracks, D. C.

Since the close of the fiscal year favorable action has been taken on my recommendation that the issue and use of a full dress uniform for the men of the Hospital Corps be discontinued. These men even on parades and occasions of ceremony have always to be in readiness to render service in case of accident and sudden sickness. Fatigue uniform is more suitable for such work than the full dress suit. The change will be of benefit to the men otherwise than by relieving them of an unnecessary uniform, for by drawing the value of the discontinued articles in white cotton duck clothing they will have a sufficient allowance for ward service, which has not hitherto been the case.

Army Medical School.—The report of Colonel Charles H. Alden, President of the Faculty of the Army Medical School shows the course of study pursued and the excellent results attained during the session 1895-96. I heartily concur in his recommendation that the final rank of the student officers in the army should be made to depend on a combination of their marks at the examinations at entrance into the service and at the close of their school work. At present their relative rank is settled by the results of the examination at entrance and their work during the session does not alter it. A very desirable incentive to secure every advantage from the practical courses of the school would be obtained if the class standing of the students were made to influence their future rank.

Recruiting.—The total number of men examined for enlistment was 17,645, of whom 8,643 were accepted, or 489.83 of every thousand examined. The ratio of accepted men was higher among the colored men, 540.57, than among the whites, 486.46.

Of every thousand accepted recruits 727.18 were natives of the United States, 659.38 whites and 67.80 negro. In 1894 the ratio of native born recruits was 679.99, and in 1893 665.95. Of foreign nationalities Germany and Iceland furnished the largest proportionate numbers, 88.97 and 75.44 per thousand recruits.

The average height of these recruits was 67.51 inches, the native born white recruit 67.68 inches, being somewhat taller than the negro 67.37, and fully half an inch taller than the foreign born recruit, whose average was 67.14 inches. The foreign born recruit had the advantage over the native born white in weight, the former averaging 147.18 pounds, the latter 145.68. The negro exceeded both, his average being 149.85 pounds. In chest measurement and expansibility also the advantage appears to have been with the foreign born recruit, his measurement at expiration and inspiration being 34.80 and 37.73 inches, as compared with the native born white who averaged 34.26 and 37.17. The corresponding measurements of the negro were 34.27 and 36.89 inches.

Identification of deserters.—From July 19, 1890 to Aug. 31, 1896, the whole number of identifications made by means of outline figure cards was 759. Of this number 18 were made in the calendar year 1890; 111 in 1891; 215 in 1892; 104 in 1893; 110 in 1894; 121 in 1895; and 80 during the first eight months of 1896.

The 121 identifications made in 1895 represent the "repeating" element of 4,929 recruits whose outline cards were examined; *i.e.*, of every thousand recruits from civil life 24.55 were identified, through the outline cards, as deserters, military convicts or otherwise bad characters. Fraudulent concealment of former service is still practiced extensively; and but for the almost certain detection indicated by them it is reasonable to suppose that the practice would attain its former dimensions.

Uniformity in medico-military statistics.—I have embodied in this report the data concerning the recruiting, sickness and mortality of our army during the calendar year 1895, tabulated in the form suggested by the International Commission of Military Medical Officers which met at Budapest in September, 1894. The Commission recommended that the various army medical departments begin publication with the statistics of the calendar year 1895, but as at this time last year I had at command all the data for 1894 needful to the construction of International tables for that year, I submitted the first set of these tables in my last annual report. Copies of the report were sent to the members of the Committee and to the Chiefs of the Army Medical Departments represented at the Budapest meeting. Reports in exchange are not expected from any of the foreign offices until the publication of their statistic data for 1895.

Medical Department of the National Guard.—The interest taken by medical officers of the Army in the progress and methods of the Medical Department of the National Guard, is well shown by an examination of the program of the sixth annual meeting of the Association of Military Surgeons of the United States, held at Philadelphia, May 12 and 14, 1896. Out of twenty-seven papers announced by the program as to be presented for the consideration of the Association, sixteen were by officers of the medical department of the Army, five by medical officers of the U. S. Navy, and six by officers of the National Guard.

HEALTH OF THE ARMY.

It is with much gratification that I report the health of the Army during the year 1895 as having been excellent. All the rates that are usually considered by statisticians as throwing light on the physical condition of a community have been lower than in any previous year of the recorded history of our army. In 1894 we were fortunate in having all the rates except the death rate lower than ever before. In 1895 all the rates except the admission rate for injuries fell below those of the previous years and the death rate below that of 1889, which was the lowest on record. It is customary to compare the rates of an army with those of the other troops, or the rates of a military department, garrison, city or other civil or military community with those of other similar communities. Such comparisons are of value as indicating insanitary influences at work in one place and not in the other. They lead to inquiry into the causation of excessive rates and to the institution thereafter of remedial measures. But to determine the absolute condition of a community as to health it must be compared, not with other people under other conditions, but with itself under its most favorable conditions. Its proper standard of comparison is, therefore, its own best annual record. The nearer it approaches its best record the higher its standard of health under conditions which usually affect the individuals.

That progress is being made in eliminating insanitary conditions or other causes which tend to affect injuriously the health of our troops is shown by the fact that during the past year the sick rates have been lowered so much that they henceforth become the standard of comparison for future years.

The admission rate to sick report numbered 1,110.22 per 1,000 of strength, as compared with 1,089.73 in 1894, the lowest previous rate, and with 1,329.94, the average annual rate for the preceding decade. The average number of days each case was treated was 11.1, as compared with 11.6 and 11.7 respectively for the previous year and the average of the previous decade. The admission rate for disease was only 837.53, as compared with 845.52 in 1894, while the rate for injury was 272.69, as compared with 244.21.

The number constantly sick was 33.89 per 1,000 of strength,

as compared with 34.49 during 1894 and 41.87 as the average annual rate of the preceding ten years. The number of days lost on account of sickness by each man of the army was 12.4, as compared with 12.6 in 1894 and 15.3 during the preceding ten years.

The rate of discharge for disability per 1,000 of strength was 9.15, as compared with 13.30 in 1894 and 23.77 annually in the preceding ten years. The discharge rate on account of disease was 6.81; on account of injury 2.34. The absolute number of discharges was 250, of which 186 were for disease and 64 for injury.

The mortality rate from all causes was 5.16 per 1,000 of strength, as compared with 6.69 in 1894, 7.85 for the preceding decade, and 6.33 in 1889, the year of lowest record. Deducting the rate for injury, 1.61, the death rate for disease was only 3.55 per 1,000, and compared with 3.95 in 1889 and with 4.76 in 1885, which until now held second place on our records. The absolute number of deaths was 141, of which 44 were occasioned by injury.

The mean strength of the command, officers and men, white and negro, from which medical reports were received during the year amounted to 25,204; white 23,195, negro 2,009. The admission rate for the white troops was 1,127.05, for the colored troops 915.88. The admission rate of the latter was smaller than that of the white troops in 1889, in 1892 and in the years following to the present time. In speaking in my last annual report of their record of sickness, I characterized it as the most favorable yet shown by the statistics. The same remark might be made concerning their record in 1895. Their admission rate for disease was 659.03, as compared with 852.99 among the whites; their rate for injury 256.84, as compared with 247.07, and the duration of each case was 10.5 days, as compared with 11.2. The number of men constantly sick per 1,000 of strength was 26.40 among the colored men, 34.54 among the white, while each colored soldier of the command lost 9.6 days on account of sickness during the year and each white soldier 12.6 days. The rate of discharge for disability was 5.03 among the colored men, 9.51 among the whites, and the deaths 4.12 and 5.25, the deaths from disease being respectively 2.74 and 3.62. The susceptibility of the negro troops to disease was noted as greater than that of the whites only in the instances of rheumatism and neuralgia; although it was equal to or slightly in excess in several other diseases, as tonsillitis, colic and constipation and conjunctivitis.

Health of the military departments.—The admission rate varied 798.32 in the Department of the Columbia to 1,355.63 in Texas. It was above the army average only in the Departments of Texas, the East and the Platte. The rate of constant sickness was highest in Texas. The Departments of the Columbia, Dakota, California and Colorado had low rates; the other departments did not differ much from the army average. The Department of Texas had the worst record; the Department of the Columbia had probably the best, closely followed by the Departments of Dakota and of California.

Four posts during the past year had admissions to sick report in excess of two entries per man. These were Fort Myer, Va., with a rate of 2,800.00 per 1,000 of strength; Washington Barracks, D. C., 2,137.74; Fort Slocum, Davis Island, N. Y., 2,103.45, and Fort Ringgold, Texas, 2,078.21. Malarial infection was the principal cause of these high rates at the first two posts, but not at the other. Five posts had the rate of non efficiency or constant sickness over 6 per cent. of the strength: Forts Brown, McIntosh and Ringgold, Texas, with rates per 1,000 of strength respectively of 70.69, 64.05 and 63.92; Fort Myer, Va., 63.78, and Columbus Barracks, Ohio, 60.65. Washington Barracks, D. C., although second in sequence of high admission rates, had a constant sickness of only 46.18, standing eleven in point of non-efficiency, while Fort Brown, Texas, although heading the list of non-efficiency stands fourteenth in sequence of admissions.

Six posts gave admission rates of less than 600 per 1,000 of strength: Fort Yellowstone, Wyo., 422.02; Alcatraz Island, Cal., 461.54; Fort Wayne, Mich., 484.62; Fort Porter, N. Y., 515.62; Fort McPherson, Ga., 566.14, and Fort Missoula, Mont., 578.75. Twelve posts reported a constant non-efficiency of less than 2 per cent. of the strength and among them were the posts of Plattsburg Barracks, N. Y.; Fort Wayne, Mich.; Fort Huachuca, Arizona, and Benicia Barracks, Cal. Fort Stanton, N. M., had less than 1 per cent. constantly sick, only 8.26 per 1,000 of strength.

PREVALENCE OF SPECIAL DISEASES.

Influenza prevailed to a somewhat greater extent than in 1895, 1,156 cases as compared with 875. The disease has continued since the close of the calendar year, and it may be expected to form a notable part of the record of 1896.

Diphtheria.—Only a few cases occurred among the troops. Several interesting reports on the use of antitoxin have been received. The opinion of Army medical officers is decidedly favorable to its use as a prophylactic.

Typhoid fever.—One hundred and nine cases, 13 of which were fatal, were reported during the calendar year. This is an improvement on the average annual prevalence and fatality of the preceding ten years, 138.5 cases, of which 19.2 per cent. were fatal. Of the cases during the past year, 12 per cent. were fatal and the mortality per thousand of strength was .48. This latter rate can not be considered high, as it is exceeded by the typhoid mortality rate of most of our cities, notwithstanding the great susceptibility of soldiers on account of the predominance of young men in the ranks.

On account of the uncertainty concerning the nature of the fevers reported from some of our western posts as Texas fever, continued fever, etc., a call was made from this office, Aug. 30, 1895, on the medical officers of certain posts for a special study of the fevers during the season of prevalence. Very excellent reports were rendered; but, as a rule, the assistance afforded by a careful microscopic study of the blood was not fully utilized in the differentiation of the cases.

Malarial diseases.—The admission rate for malarial diseases in 1895 was 82.56 per 1,000 of strength, and the rate of non-efficiency 1.70, the former higher, the latter lower, than the corresponding rates for the previous year, 74.72 and 1.88 respectively, but both considerably lower than the average annual rates of the preceding decade, 103.32 and 2.57. The lowest admission rate on our records was reported in the calendar year 1891, 62.23, with a non-efficiency of 1.58. Although some of the posts in New York, such as Fort Hamilton, Fort Wadsworth, Willets Point and West Point, contributed to the increased rates, the two posts on the Potomac River, Fort Myer, Va., and Washington Barracks, D. C., were the main source of the increased rates, the former having 1,092.59 admissions and a non-efficiency of 14.07 per 1,000 of strength, and the latter 1,079.89 and 13.71. Major Walter Reed, Surgeon U. S. Army, investigated the character, prevalence and probable causation of the malarial fevers at these posts. From a close study of the conditions, he came to the conclusion that in both instances the prevalence of the disease was due to the marsh lands of the Potomac valley.

Diarrheal diseases.—These diseases have been diminishing gradually in prevalence. The admission rate was only 85.14 per 1,000 of strength, as compared with 94.77 during the preceding year, and with 129.26 as the average annual rate of the preceding decade. As a rule, the cases were trivial, the rate of non-efficiency for the year having been only .78 per 1,000 of strength.

Venereal diseases.—The admission rate for venereal diseases, 73.72 during the calendar year 1895, was less than that of the preceding year, 80.43, and less than the average annual rate, 76.32, of the preceding decade. The non-efficiency associated with all these rates did not vary much, being a little over 5 per 1,000 of the strength. The relative prevalence was greater among the whites than among the negroes, the admission rate of the latter having been only 52.26. In 1893 the admission rate of the colored troops fell below that of the white, and it has so continued since then.

Alcoholism.—The admission rate for alcoholism, 30.11 per 1,000 of strength, is a slight improvement on that of the previous year, 30.94, but a great improvement in the average annual rate, 44.20, of the preceding decade. The rate of the colored troops was, as usual, low, 6.47.

Rheumatic affections.—The admission rate was somewhat larger in 1895 than in the previous year, 64.08 per 1,000 of strength, as compared with 63.33, but the discharges for disability numbered only 12 as compared with 24. The improvement in the health of the troops of late years may be seen by comparing these figures with the average annual admission rate of the decade 1884-93, 83.34 with 55.2 discharges for disability.

Tuberculosis of the lungs.—The rates for tuberculosis of the lungs were smaller this year than last. Admission 2.42, discharge 1.06, death .37, as compared with 2.96, 1.59 and .61. They are considerably smaller than those of previous years, for the prevalence of consumption among the members of the Indian companies gave high rates as the average of the previous decade. It is to be noted also that during the past two years the rates for consumption among the colored troops have fallen so as to be much lower than those for the whites, whereas formerly they were much higher.

Injuries.—The rate of admission for injuries, 272.69, is larger than in 1894, when this rate was 244.2; it is larger also than the average annual rate of the previous ten years, 257.37, but although the relative number of cases was increased, there was

no corresponding increase in their severity, for the non-efficiency, 8.46, was somewhat less than that of the decade cited.

Nineteen cases of suicide were reported, as compared with 18 during the previous year.

Radical cure of hernia.—In September, 1895, after considering fully the results attained by surgical treatment in the radical cure of hernia, together with the small amount of risk involved in the operation as now conducted under careful aseptic supervision, I came to the conclusion that the operation might be made available to preserve good soldiers, although ruptured, in the service and to lessen the number of men discharged for disability and subsequently pensioned for hernia. The annual loss of men by rupture has always been considerable. During the six calendar years ending Dec. 31, 1894, 153 men were discharged. I did not consider that the progress of surgery warranted a resort to operative proceedings in all cases, but felt confident that surgical interference would enable many to continue in the military service, or earn their livelihood with comfort in civil life, who are now discharged and pensioned for hernia.

Since September, 1895, twenty-nine cases of hernia have been treated by operation with the most satisfactory results so far as can be determined at this early date. This gives an excellent promise of future benefit in cases that have been hitherto regarded as disqualified permantly for military service.

THE SANITARY CONDITION OF THE ARMY.

Quarters.—In four instances during the course of the year attention was specially invited by medical officers to the insanitary and generally worthless condition of the barrack buildings at their posts. The barracks at Fort Preble, Maine, were characterized as very old and not worth repairing. At Fort Custer, Montana, the barracks with one exception are old and dilapidated, all the floors uneven, worn through in places, and so near the ground that the subfloor space can not be cleaned nor inspected except by taking up the floor. The dilapidated condition of the buildings at Whipple Barracks, Arizona, has been reported on various occasions. They are overcrowded, draughty and poorly ventilated. Estimates for additions to relieve the overcrowding have been disapproved. In July and August, 1895, the improvement of this post was again discussed and urged strongly by the Chief Surgeon, in the hope that early and favorable action would be taken by the War Department.

The marked improvement that has been made during the past few years in the sanitary condition of our military posts, is especially manifest in the fact that during the past year no report was received concerning the crowded condition of prison rooms or guard houses, nor concerning the want of ventilation or repair of the buildings occupied for prison purposes. Formerly unfavorable criticism on the quarters provided for men under guard was as common as it is now infrequent.

Drainage and sewerage.—At the large and important post of Fort Meade, S. D., privy pits are still in use; a suitable sewerage system will no doubt be considered with the reconstruction of this post. The privy pits at Fort Keogh, Montana, also should be filled up, and replaced by the dry earth system until sewers are built.

Concerning the efficiency of the dry earth system there is ample testimony from the experience of many military posts. Where complaint is made there is found on investigation to be some want of the necessary care in carrying out the details of the method. As an instance in point, it was reported of one post during the year that "in only one closet was any dry earth found, and in that no evidence of its systematic use." The action taken by the post commander on this report was to call the attention of company commanders to this negligence and on his next inspection the surgeon found the dry earth closets in satisfactory condition.

Water.—A temporary scarcity of water was reported from several posts, as Fort Canby, Columbus Barracks, Fort Grant and Fort Monroe. The bad quality of the river waters used at certain posts, as Jefferson Barracks, Fort Leavenworth and Fort Custer, was specially noted by medical officers, who recommended filtration for their purification. The Las Moras Spring at Fort Clark appears now to be protected from inflow of surface water. The discovery of a spring at Fort Reno furnishing a water similar to that of Caddo Springs, will greatly benefit that post. There has been much activity during the year in improving the water supplies of military posts. Medical officers take special interest in the subject, and the Quartermaster's Department has carried into effect many suggestions for extension and improvement.

Food.—The food of the men has been reported almost uniformly as ample in quantity, of excellent quality, and well cooked.

Clothing.—In my last annual report I had occasion to invite attention to adverse criticism by certain medical officers on the quality of the leather in the shoes issued to the troops. No such criticism is found in the reports of the present year; yet in one instance a number of men were disabled on a practice march by abrasions and inflammations of the feet, attributed to ill-fitting shoes. The shoe now furnished by the Quartermaster's Department appears to be of excellent quality, make and shape, and there seems to be no reason why men should be disabled on a practice march if proper care is taken in having their shoes adapted to the feet before the march is undertaken. Men who begin a practice march simultaneously with the process of breaking in a pair of new shoes, are likely to suffer from chafings or undue pressure, which may disable them temporarily and unnecessarily.

The various articles of clothing have been of good quality, and suitable to the climate and service.

Habits of the men.—The remarks on sanitary reports concerning the habits of the men are generally satisfactory, and are corroborated by the lessened rates of the past year for venereal diseases and alcoholism.

Facilities for personal cleanliness have been greatly improved at our military posts during the past few years. At present they are rarely referred to as inadequate.

Gymnastic training and athletic sports are held responsible by many medical officers for the increase in the number of injuries during the past year. Their view is no doubt correct, but since the increase was not manifested in the rate of non-efficiency it is evident that the extra cases which raised the admission rate above the average of the preceding decade, were not of a severe character. The accidents of the gymnasium and the athletic field are offset by the benefits derived from the training. Men are drawn away from vicious habits which tend to increase the sick list, and the ability of the system to withstand harmful influences is greatly increased. Hence, although the list of injuries is enlarged by the practice of athletics, the rates of disability from injury and disease are less than in previous year in the history of our Army.

Respectfully submitted,
GEORGE M. STERNBERG,
Surgeon-General, U. S. Army.

HON. D. S. LAMONT,
Secretary of War.

SELECTIONS.

Serum-therapy.—A fermentation has been going on in medicine for the last century, as a sign of which the systems in rotation appear on the surface and after a longer or shorter length of time disappear to, who knows at what future date, start the game anew. The present is the age of serum-therapy. About a hundred years ago the "humores" also reigned, although in a different way. Humoral pathology, which supposed the seat of disease to be in the fluid constituents of the body, was suddenly replaced by cellular pathology. The microscope taught us that the tissues consisted of cells which to a certain degree were independent organisms and upon whose functions depended the fate of the entire organic structure. But as no footing could be found in the cellular pathology, the research was continued in other directions.

On the one hand there developed by the aid of botany and chemistry a modern scientific pharmacology, while on the other side pharmacologic remedies were entirely discredited. This led to the formation of the nihilistic school, which at least had the advantage of making unprejudiced observations.

The development of the physiology of to-day has led us, at the instance of the discovered normal and diseased functions, to judge the therapy of the latter quite different. It was the development of a new physiologic school. But now again the microscope discovered new things, bacteria, bacilli, microbes, and instantly all diseases were ascribed to these microörganisms. The next step was for chemistry to appear on the scene with microbe-killing remedies, and as it at the same time furnished a few new analgesics and febrifuges a temporary armistice was secured. The observation, however, that it was not the microbes as much as their poisonous products that were in question, soon again aroused those who would rest on their laurels. Chemistry was combined with bacteriology to solve the enigma

by isolating the poisonous products and experimenting with these. This led to their inoculation, as it appeared that these products were poisons for the microbes themselves, as for instance alcohol and yeast enzyme. According to this scheme tuberculin was inoculated a few years ago. The danger of this inoculation, however, soon showed the fallacy of the theory, and investigators sought after a perfection of the idea. As the latest result of their efforts we have the serum treatment. Serum-therapy can only be understood when we follow the train of thought which lies at the base of inoculation.

As an original form of vaccinating there was prevalent in China and India direct transmission by injecting pock-virus. In place of this, clothing used by smallpox patients was sometimes worn so that at an opportune time they might also pass through the disease, probably during a light epidemic, as in those days smallpox was considered as measles and scarlet fever are to-day, which according to our mothers and grandmothers every child must have had.

Vaccination also came into practice by reason of its serving as a quietus for those mothers who had to send their sons to India, being thereby enabled to nurse them at home, instead of having them plague-stricken in a foreign clime. But as inoculation of pock-virus demanded too many victims, surgeon Jenner conceived the idea of inoculating cowpox, which he considered transmitted smallpox. As this vaccination in comparison to the former inoculation was comparatively harmless, it soon gained favor and still continues so, although no explanatory theory was then advanced or ever since given, and in spite of being contrary to all modern laws of antisepsis.

One could imagine, and this many an adherent of the vaccination theory does to his own satisfaction, that as a rule a person gets measles and scarlet fever but once, this would be applicable to all infectious diseases and especially to smallpox. In reality this is neither the case in smallpox, diphtheria nor any other disease. However, following this supposition it has been said that, having had smallpox, protects from smallpox, and further that passing through a mild form of pox, that is vaccination, also gives the desired protection. After the word "protects" was unobservedly smuggled in, nothing remained to be proven, and up to the present day the votaries of vaccination have owed us a satisfactory explanation.

In every falsehood there is, however, contained a kernel of truth. If we will, namely, observe more frequently that during the existence of a febrile disease, the afflicted one is not susceptible of other infectious diseases, as owing to the increased vital activity, increased oxidation, etc., a second attack is more easily warded off, we can also admit that an artificially produced febrile reactionary condition as is produced by vaccination will give a certain protection for a short time. This protection can, however, not last longer than a few weeks, it will therefore be seen why sober observers recommend the unusual repetition of vaccination. The principle of vaccination, however, was established and has held its own alongside of all change of theories. In the course of time, all possible kinds of vaccinations patterned after both "inoculation" and the "moderated vaccination" have been tried. But syphilis inoculation as well as cholera, hydrophobia and other vaccinations were soon abandoned. The same fate was shared by the tuberculin inoculation, as they all did notoriously more harm than good.

Research was continued, but this time from the only correct standpoint why certain persons were immune, *i.e.*, proof against contagion. These individuals, whether man or beast, must contain within themselves a protection. This protection could be found only in the fluid tissues, the all permeating blood, as the different tissues are too dissimilar to contain protective matter. The theory was advanced that serum, the blood fluid of an animal which had overcome an infection, as for instance diphtheria inoculation, should be injected into other animals in the supposition that the serum contained a contra poison, an antitoxin. This is Behring's serum-therapy. According to my notion we again have one foot in the too readily discarded humoral pathology, and I can only express my rejoicing at this, as there is more contained in a humoral pathology modified according to our latest physiologic and chemic knowledge than many a one would dream. We will accept as undoubtedly correctly observed the fact that the injected serum of an animal having survived an infection gives a certain protection to another animal or in other words puts it in a better condition to withstand infection. We, however, lack conclusive evidence, whether so large a quantity of serum (about 1 gram to 1 kilo. body weight) of a healthy, unprepared animal is also capable of producing this so-called immunity in an infected one. It can be admitted that the addition of so large a quantity of serum, an excellent nutrient fluid, awakens, that is, strengthens the vital energy to such a degree that the weaker organism acquires the ability of the naturally immunized one to conquer the intoxication. The blood has so many chemic and physical properties, the body so many protective contrivances, such as fever, etc., that one can not make an apodictic assertion as regards antitoxins or counter-poisons. Professor Buchner (Munich) has proven by experiments on animals that antitoxins are altogether out of question, as the chemic quality of the animals experimented on has an important bearing on the case. The originally immune animal can not possess any antitoxin, beside during the course of an infectious disease a number of reactions take place which tend to make the introduced injuriousness harmless. In this regard Buchner's principles may eventually play an important part. But even admitted that Behring's theory is correct, what good is it? They claim the mortality to have dropped from 50 per cent. to 25 per cent. in diphtheria. Admitting the correctness of the statistic observations I still find the rate of mortality so high that I would hardly venture to use it as an argument. Beside it is openly admitted that where, as there usually are in severe cases, streptococci are present these cases are not affected by the serum. Well, in the milder cases I use no other remedies but those I have explained in my treatise[1] years ago and which we more or less all use. In severe cases I really need no assistance either, besides such an assistance is made directly impossible by the antitoxin treatment. We can, therefore, not use this kind of serum-therapy. The contagionists have repeatedly stated: "Live as you please, only be sure to get vaccinated in the opportune moment." This is surely not according to the laws of hygiene. Consequently serum-therapy is no hygienic triumph. Undoubtedly, and we should not be misled by this, the serum-therapy will be longer lived than any previous inoculation method, as it is relatively harmless. But the lack of success will ultimately kill it off.

Those who know what weapons have been employed to conquer diphtheria, will also lend a willing ear to the objections of those skeptics who attribute the lower rate of mortality in diphtheria under the serum treatment, to the absence of the old drug poisons. Add to this, better nursing and the possibility of the serum being a blood nutrient, and why should there not be good results?

We likewise obtained good results during the first period of tuberculin inoculation, because the patient's appetite was no longer impaired by giving creosote, and the "interesting cases" were better nursed. If we start with the principle that the healthy organism contains a protection, probably protection matter and possibly antitoxins, then the only sensible thing to do is to investigate the protective power and by correcting the mode of living and the like and to impart it to those individuals who on account of want of natural protection are in need of it. This is the opinion of the individualists who find within the

[1] Die wichtigsten Kapitel der natürlichen Heilweise. Stuttgart, Zimmer's Verlag.

quality of the individual the riddle which is being tried to be solved without.

I think there are animals and human beings who are relatively immune against all infections. Against certain poisons they are positively proof; others by means of chemic and physiologic protection contrivances, they conquer. We can impossibly vaccinate against all infectious diseases from the beginning; that means to vaccinate the sucklings. Furthermore, we can at the decisive moment, that means in case of sickness, only vaccinate in the culture centers against all possible attack, presupposed we had "antitoxins" for every disease, but so far we only have the diphtheria and tetanus antitoxins, of which the latter has proved itself useless. (Relatively speaking, in the meantime barring other therapeutics, people would have to keep on dying for years, as it would take that long before all the antitoxins would be discovered.) It is moreover uncertain whether great damage is not done the body by inoculating various antitoxins, which according to Buchner are toxin derivatives and related to the toxalbumins.

On one hand we do not care to wait so long, on the other we must go to work with more logic, expecting nothing from uncertain remedies, but aspire to acquaint ourselves with the relatively universal immunity and its conditions. That the universal immunity is not sparingly distributed among human kind is proven by the mere existence and constant increase of humanity, which in spite of thousands of years of aggression by all possible plagues, has held its own and, as it appears, has acquired a natural immunity against pestilence, typhoid and smallpox.

In this field of natural immunity by leading a hygienic life have I and others, in theory and practice, rendered such service that we have therapeutically gained such an ascendancy over the votaries of serum-therapy, who not until now—and that in the wrong light—have taken the individual into consideration, so that a better hygiene and therapy than we have against infectious diseases can not be found anywhere to-day. I do not wish to cite statistics, but on request any physician of our school will stand ready to treat diphtheria cases under control with a smaller resulting mortality rate than can be obtained by means of the so-called serum-therapy. It is our object to make *our own* serum of the best possible kind and quality.

Presupposing that my doctrine of dietetic blood-diathesis[2] is well known, we have in it a lesson which if applied to our diet and mode of living, will bring the protective power of *our* serum to its normal height, *i. e.*, will make us relatively immune. The quintessence of our doctrine is the proof that the reduced alkalinity of the blood of civilized men can by dietetic means be brought back to its normal strength. According to Von Fodor and others the degree of alkalescence of the blood is proportionate to its immunizing power, which experimentally proves the correctness of my views on serum-therapy. While in a case of mixed diphtheria with streptococci the physician applying diphtheria antitoxin is helpless, the organism made relatively immune by means of dietetics is able by way of its innate protective power assisted by appropriate external remedies to successfully combat such cases.

For the forgoing reasons I have no fear in my own behalf in acute diseases such as diphtheria for instance, as I know the quality of my body and its serum. Not so with others whom we know to be filled with autotoxins, as the cause of the disease, be it organized ferment, a microbe or a chemic ferment, an enzyme liberates them. For the body of the majority of the population, who are governed by false dietetics, is overloaded with insufficiently assimilated albumin and insufficiently oxydized substances which by contact are doubtlessly changed into toxalbumins. (Compare Ernest Krauss in *Zeitschrift für physicalische Chemie*, Band xviii, Heft 2 "Über die Ausnutzung der Eiweissstoffe in der Nahrung in ihrer Abhängigkeit von der Zusammensetzung der Nahrungsmittel.") Krauss proves that where albumin is freely taken as nourishment, only part of the albumin is changed into peptone, the other part decaying in the bowels, "by which on account of the presence of a large quantity of decayed matter the body is only injured."

Upon the chemic condition of the body, not upon the amount of infection depends the severity of the case. The microbes do not easily gain access to the inner body, but the toxins do, which doubtless, being relatives of the enzymes, are also capable of developing results like these. They furnish us with new dissecting matter, that is, loosen the vital process (fever and oxydizing), the deposited decayed matter, autotoxins in the real sense of the word. With the autotoxins lies the danger. They injure the heart and the kidneys and do harm, when that little diphtheritic toxin has long been made harmless.

It is interesting to note that Professor Escherich (Graz) in No. 22 of the *Wiener klinische Wochenschrift* presents the following theses covering my views:

1. For the appearance of diphtheritic disease there is necessary, beside the bacillus and the possibility of its invasion, a specific receptiveness of the organism about to be infected.

2. The condition of the local and general disposition, the greater or less degree of virulence of the bacillus, the latter only secondarily considered, are a criterion for the termination of the case.

3. Also other and even saprophytic bacteria, besides their products, may have an effect on the spreading and the clinic termination of the process.

I consider the third thesis a circumlocution of what I understand by autotoxin. My therapy in diphtheria is therefore primarily aimed to put out of the way the autotoxins. The evacuation of the lower gut by means of injections furnishes to us in ninety cases out of one hundred such a terribly smelling stool which differs distinctively from other fever stools, which are usually dry and not so fusty, this being my reason for thinking that diphtheria is a general instead of a local disease, as now supposed.

By these means, at least, dangerous products of decay are prevented from being absorbed. The next thing for us to do is to remove the autotoxins by means of increased perspiration and eventual transpiration, by reason of which long lasting partial or entire packing, eventually sweat-packing, are brought into question. By increasing perspiration and transpiration, the almost constant relative hydremia is done away with.

Finally, for nutrition we will not choose albumins, as these, under the conditions, would be the same as poison. Moreover, we will introduce into the serum the mineral substances, nourishing salts in the shape of readily assimilable fruit juices and lemonades, and keep the body with the sugar and water of them in a sufficiently nourishing condition, without especially burdening the gut.

That is my position toward serum-therapy. Behring's serum-therapy is a very interesting scientific problem. Therapeutically considered it represents a byway which, on having recognized the truth that our own serum should and will solve the problem, as a rule comes too late to be of any service to the patient.—Read before the Congress of Physicians at Nürnberg (Germany), by H. LAHMANN, M.D. Translated by CARL STRUEH, M.D., Chicago.

Morphin Antidote to Cyanid of Potassium.—Heim discovered recently in the course of some experiments that animals which had received a fatal dose of potassium cyanid were saved by the injection of a non-fatal dose of hydrochlorate of morphin. This effect seems paradoxical, as the two substances combined in the laboratory produce only a precipitate of pure morphin and the elimination of free hydrocyanic acid.—*Semaine Méd.*, September 23.

[2] Die diätetische Blutenmischung als Grundursache aller Krankheiten. Leipzig, Otto Spamer.

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SATURDAY, OCTOBER 24, 1896.

COLOR VISION.

The perfectly satisfactory physiologic explanation of color sensation has not yet been made, as is demonstrated by the fact that in nearly all the text-books it is found necessary to state the two leading hypotheses, those of HELMHOLTZ and HERING, side by side, though widely differing in their methods of accounting for the phenomena. One may be more favored than the other, but each has its defects. The latest critic of the HELMHOLTZ theory, TSCHIRIEW, in the *Archives de Physiologie, Normale et Pathologique* for October, asserts that it is defective in that it does not respond satisfactorily to JOHANNES MUELLER'S laws of specific energies, in that it assumes each spectral ray of a determined wave length can at once excite all three elements of the retina in different degrees and thus to give rise to these different sensations. It also fails to account for that type of true color-blindness, consisting in a loss of the sensations of violet, red and purple and their complementary greens; and it does not explain the effect of large doses of santonin in producing a greenish-yellow tint in all white or shining objects. The HERING theory accounts better for the phenomena of color-blindness and the effects of santonin, but its assumption of different chemic processes produced by the rays of different length in the same visual substance of the retina is hard to prove, and its claim that the sensation of black or of darkness is due not to a cutting off of the light, but to what may be called dark rays acting assimilatively or re-integratively upon the visual substance, is against all known chemic or physical laws. It is hard to understand how the diminution of all rays can cause an increase of the "black" rays. There is also difficulty in conceiving the existence in the same space of three different chemic substances that change, not only singly but two or three together, under the influence of the light rays received, and do this in two different ways, assimilatively and disassimilatively.

Finally, neither of the two theories is satisfactory in explaining the union of the different primary color substances into the complex ones, red and yellow or red and blue, for example.

In order to meet these difficulties he points out, TSCHIRIEW offers a theory of his own. In the first place he accepts MUELLER'S law of specific energies in a rather wider sense than has been hitherto admitted, allowing variations in quality in the homogeneous sensations derived from a single excitation of the peripheral termination of sensory nerve fibers. In the second place he assumes in the layer of rods and cones the existence of a special photo-chemic or optic (visual) substance of two kinds, one in the rods, capable only of change according to the quantity of the light rays impinging upon it, and giving rise to the sensations of the different degrees of white or uncolored light; the other in the cones, changing not only to excitations of quantity, but also with those of quality, and producing the conscious sensations of quality or color as well as of quantity, according to the length of the luminous wave. He considers these theoretic assumptions reasonable and in support of the second one he adduces the facts of the lack of the cones in the retinæ of nocturnal animals (owls, bats), and the demonstrations that the retinal purple is decomposed by light so that even optograms have been made with a rabbit's retina exposed before a strong light and fixed with alum. The yellow spot, where only cones exist, changes on the other hand neither in light or darkness.

Admitting these assumptions, which are supported by still further evidences than those suggested above, TSCHIRIEW finds it possible to meet the difficulties where the former hypotheses have failed. In his explanation of the various types of color sense defect he does not limit himself to the peripheral retinal apparatus but supposes a certain "rigidity" of the nerve cells of the visual centers, by which they lose their faculty of receiving impressions of qualitative changes impressed on the retinal cones. In complete achromatopsy, as occasionally observed in hysteria, there may have been, for example, a vaso-motor spasm affecting the nutrition of these cells and rendering them responsive only to quantitative light impressions. This intervention of the cerebral centers is in its way an advance; the optic mechanism has in the past been a stumbling block from its very perfection;

it did not sufficiently suggest the possibility of failures of color perception not dependent directly on its defects. Men have written on the color sense as if consciousness extended down to the peripheral termination of the optic nerve, or perhaps it should be better stated, as if color perception there took place. HELMHOLTZ, HERING, TSCHIRIEW, FICK, or any other theorizers on this subject have really only the task of producing a hypothesis that will account for the phenomena under normal conditions of the higher visual centers; the derangements of these latter afford an unknown, but certainly extensive, range of possibilities of morbid alterations or defects of the color sense.

The theories of the author here quoted may not be altogether new; indeed, it appears possible some of them may have been emitted before, but they are in their way suggestive and noteworthy. His paper contains some other points worthy of mention, such as his statement that white as a sensation is not the result of the blending of all the spectral colors but is simply the effect of the reflection of uncolored light by minute particles under certain special conditions. It is one of the suggestive contributions to the literature of the subject, whatever may be the ultimate estimate of the views it presents.

LAY DISTRUST AND ENMITY OF THE MEDICAL PROFESSION.

For two thousand years or more the medical profession has waged a ceaseless war to obtain the fundamental condition of medical knowledge and progress, *i. e.*, dissection material, and to-day many medical colleges are compelled to import from long distances and at a crippling expense an insufficiency of cadavers.

Ever since the rise of the scientific spirit in modern times the use of animals for experimentation, quite as necessary a prerequisite of medical progress, has been bitterly and violently opposed by the non-medical world, and to-day that opposition is more dogmatic and furious than ever.

The lay world, as regards both private individuals and governments, is so indifferent to or suspicious of us that while endowments, scholarships, etc., running into millions exist for the encouragement of the study of languages, astronomy, theology, etc., yet medical education and medical students are left solely to self-interest, with almost no endowments to help what is the first necessity of human life—health and the eradication of disease.

The one benefit of most proved and patent service to humanity, which medicine has given the world—vaccination—finds everywhere, but especially in England and America, thousands of bitter opponents. One of these in a speech in England as regards the recent Gloucester epidemic, where hundreds sacrificed their lives to the craze, has the audacity to utter the following words: "Gloucester presented circumstances and cases which proved undeniably that vaccination was nothing but a delusion and a snare and that insanitation was the real tap-root of the whole of the sufferings of that poor, miserable, devoted city. During the panic the doctors had been piling on the agony and pocketing the plunder and scattering people through the length and breadth of the country with their arms in slings as if they had just returned from a great European war."

Lastly, the opinion of the lay world is made still more plain by the facts of the oceans of "patent" or secret nostrums eagerly bought and devoured by it; by the long struggle, still going on, to obtain medical practice legislation to root out quackery, and by the avidity with which it supports medical sectarianism and quackery in the regular profession.

Such facts as these might be multiplied indefinitely.

Upon the other hand, every intelligent physician has the sincerest and most well-grounded conviction and consciousness that the profession taken as a whole is more unselfishly and more successfully devoted to the alleviation of suffering—of the very people (and their children) who hate that profession—than any single body of men of so large numbers the world has ever seen.

All this being true, one is almost disheartened at the ingratitude, the stupidity and the brutality of our enemies. Why labor for a united world that scorns the help and hates the helper, blind and ignorant of its own true need and inobservant of its best friend? Beyond a doubt it is the recognition of this very fact of the combination of ignorance and need of the world that sustains the devotion to duty of many physicians and keeps them from joining the ranks of the shrewd self-seekers. The poor victims of their own hate and egotism and ignorance are of course too pitiable to be either duped or detested. They are in truth pathologic specimens of society and history, and a man with any largeness of character can not upbraid or punish or despise a bit of morbid tissue, whether sealed in alcohol or washed up in the world's sewage. The cold-blooded will study it and philosophize about it, the warm-blooded will commiserate, and both will regret the disease and malignity that produced it and smile lukewarmly at the passion which fires the hearts of the monomaniacs.

Two things remain to prevent despair. The first is that we are gaining, slowly perhaps but still surely, in our warfare against disease and ignorance as the lessening death rate certainly shows, and secondly, a progressively increasing number are recognizing that the acceptance of the selfish and personal end would bring no added happiness. We are winning more and better allies in the lay world, and the insatisfaction of a wholly greedy life is becoming always more evident to a larger number of physicians. When

struck by some particularly ugly fact—some triumph of quackery, some victory of a blatant or sly self-advertiser over honesty and modesty—we may be tempted to cry, "It's no use! We might as well give up!" But a large and healthy outlook and overlook will at last convince that there is a decided and clear measure of progress being secured with every generation's passing.

The puzzling fact remains to challenge our ingenuity. Why this persistent opposition? Viewed simply as a psychologic riddle we can not help being struck by the incongruous and egregrious blundering of the lay world in so hating the profession which is seeking only the good of the hater. Why this century-long bitterness and malignity of spirit, reaching even to ludicrousness in the diatribe of the poor fellow who charges the doctors with "pocketing the plunder," the fees for vaccination from the be-pested Gloucester folk. To take another instance, doubtless many anti-vivisectionists are in reality tender-hearted people, but doubtless also many are spurred to their violence not by pity of the "victim," but by hatred of the "vivisectionist." Macaulay said that the Puritans opposed bear-dancing, not out of pity for the animal, but because it gave pleasure to the spectator. In every one of *Life's* cartoons or silly lunges on the subject of vivisection one sees that the bitterness of spirit against physicians is many times stronger than any sentiment aroused by the sufferings of the animal.

After all deductions are made on account of inherited love of magic and miracle-mongering, one is finally driven to believe that the fundamental cause of the hatred of Lord Omnes for us is due to his utter inability to realize that men can have any abiding motive of conduct that is not in its last analysis selfish. He knows in his own heart that if he were a physician he would practice vaccination, not for the good it would do, but because of the fee he should derive from performing the operation. According to his philosophy the preacher makes better wages and with less labor by preaching than he could by business or farming or shoveling; and so with the rest of the "parasites." Feeling that such are his own ethical standards, he must believe they are also those of all others, and the half-hidden consciousness that it is not so with these others arouses in his own heart a tempest of passion to keep the voice of conscience from being heard. Then, too, we have in every city and town self-advertisers, quacks within the profession, whose trickeries are so manifest as to strike the attention of all, and seeing these the profession-hater sticks his tongue in his cheek and gloats over the supposed fact that this particular charlatan, as he thinks, only exposes what the others are more shrewd in hiding, and that at last, if it were known, we are "all alike."

And thus it comes to the moral, that there is no enemy so harmful to the profession as the one within our own ranks who hypocritically pretending acceptance of the higher standards of conduct of the guild, in reality practices the greeds, charlatanism, and self-seeking.

EMPIRICISM VS. WORKING HYPOTHESES IN THERAPEUTICS.

The excuse most strongly advanced by the charlatan for his existence is the specious one that therapeutic discoveries are all the results of chance empiricism. This plea is reiterated by physicians whose mental indolence limits them to what are most absurdly called the "practical" (but more properly the "receipt book") side of medicine, just now exploited at the expense of the profession, by certain advertising Hahnemanniac "free doctors." The shallowness of the scientific foundation of the "receipt book doctrine" contrasts markedly with its wide acceptance. Many physicians fail to recognize the great truth pointed out by CLAUDE BERNARD that, "All natural philosophy is summed up in this: To know the law which governs phenomena. The experimental problem reduces itself to this: To foresee and direct phenomena. It will not satisfy the experimental physician, though it may the merely empirical one, to know that quinin cures ague. The essential thing is to know what ague is and to understand the mechanism by which quinin cures. All this is of the greatest importance to the experimental physician, for as soon as he knows it positively, the fact that quinin cures ague will no longer be an isolated and empirical fact. This fact will be connected then with the conditions which bind it to other phenomena and we shall be thus led to the knowledge of the laws of the organism and to the possibility of regulating their manifestations. A striking example can be quoted in the case of scabies. To-day the cause of this disease is known and determined experimentally; the whole subject has become scientific and empiricism has disappeared. A cure is surely and without exception effected when the patient is placed in the condition known to produce this end. This is the purpose of physiology and medicine, to make oneself master of life, in order to be able to direct it." Even the briefest examination demonstrates that therapeutic discoveries were never made by chance empiricism, but that all result from working hypotheses which though often fetichistic in origin had excellent results. One excellent illustration is the famous doctrine of signatures, which though badly abused from forced interpretation, strongly stimulated research. One most significant evidence of the superiority of even fetichistic working hypotheses to chance empiricism is the pediatric laxative, manna (*fraxinus ornus*). The Aryan races employed birth ceremonies to propitiate evil spirits. In these ceremonies the sacred ash played an important part. The infant ZEUS, accord-

ing to Greek myth, was fed on honey from the sacred ash and from bees. Among the ancient Germans that sacred food was the first put to the lips of the newborn babe. So it was among the Hindus as appears from a passage in one of their sacred books. The father puts his mouth to the right ear of the newborn babe and murmurs three times, "Speech, speech." Then he gives it a name. Then he mixes clotted milk, ash and bee honey and butter, and feeds the babe with it out of pure gold. In the Highlands of Scotland at the birth of an infant the nurse takes a green stick of ash, one end of which she puts into the fire and while it is burning, receives in a spoon the sap that oozes from the other, which she administrates to the child as its first food. Some thousands of years ago the ancestors of this Highland nurse had known the *fraxinus ornus* in Arya (KELLY, Indo-European Folk-lore) and now their descendant, imitating their practice in the cold North but totally ignorant of its true meaning, puts the nauseous sap of her native ash into the mouth of her hapless charge. The old crones who haunt the obstetric chamber often practice these antique methods of warding off evil spirits, or, as the crones would phrase it, preventing bad luck. The laxative quality of ash honey evinced the beneficent fetichistic effect of the drug, since, according to a folklore principle (still accepted by certain races), constipation is one of the means "whereby the devil worketh," to quote BAXTER, the seventeenth century Puritan. Because of the tendency of fetichistic explanation to vanish with advance in culture, the original working hypothesis (on which manna was given) disappeared to give place to the purely laxative principle. This slow development of a humble laxative from the awe-inspiring sacred ash (the Ygdrasil of Scandinavian mythology) significantly demonstrates that even the slightest scientific discovery is not suddenly made, but is the product of a long evolution whereby, as SHELLEY sings:

> "Thought by thought is piled till some great truth
> Is loosened and the nations echo round."

The physician who fails to recognize the great truth here enunciated aids the quack who pretends to discover stolen and distorted ancient therapeusis.

SOCIAL STATUS OF THE BRITISH MEDICAL PROFESSION.

The completion of the sixtieth year of Queen Victoria's reign will doubtless be marked by the usual anniversary creation of peers, baronets, knights, etc. At present it seems probable that, as usual, the British medical profession will compete with fertilizer and sausage manufacturers for baronetcies and knighthood but will not dare to rival the lordly distillers and brewers in the race for peerages. The British medical profession, during the present century, far from occupying a high social status, has always been viewed askance by the present Queen and her uncles. It disproved the foul calumny, unworthy even a village gossip, which the court clique launched against the Queen's unfortunate maid of honor, Lady FLORA HASTINGS, whose sarcomatous uterus was proclaimed by highest authority evidence of unchastity. The bitterness with which most of the WETTINS regard the medical profession was voiced by that master of billingsgate, the Duke of Cambridge, when the British army medical service was given a definite status, a reform struggled for by almost all that is illustrious in nineteenth century British literature and science. The Duke thus addressed the surgeon-general of the army whom he met at a dinner soon after it had been decided by the government to give official rank to members of the medical department:

"Good evening, Surgeon-General, or Field Marshal, or what the —— they call you now, I don't know how to address you, you with your new titles, I don't know what the —— I am myself; I suppose you expect me to take my —— hat off to you; what —— do you —— fellows want."

This view of the British profession is so accepted by the snobocracy that the Duke of Westminster will not let residences on certain London streets to "medical men or other minor tradesmen." The sixtieth anniversary of VICTORIA'S reign seems a good time to raise the social status of British medical men by the creation of medical peers. It should be remembered in this connection that one of the greatest families of the present period traces its recent ancestry to a surgeon-apothecary, HUGH SMITHSON. He, a century ago, on marrying the peeress of the PERCYS, was created Duke of Northumberland in 1766. It was suggested that his ducal coronet bear senna leaves in lieu of the usual strawberry foliage. The English peerage marks social status in Great Britain. There is no reason why, in view of the regard shown physics in the peerage of Lord KELVIN, medical science should not be equally recognized. The House of Lords of the "crowned republic" could with advantage bulwark itself by medical members against the rising tide of democracy.

CORRESPONDENCE.

Paracelsus.

CHICAGO, Oct. 19, 1896.

To the Editor:—On page 879 of THE JOURNAL is a clipping which presents the life and character of Paracelsus in somewhat too roseate a hue. When I was at Salzburg in 1889, admiring the quaint picturesqueness of the town, reviving memories of Mozart and wondering at the modern troglodytes residing in furnished apartments cut cave-like out of the solid rock in the hillside, I naturally, as a physician, hunted up the relics of Paracelsus. The monument and chapel described in the clipping are easily discovered. Of much more interest to me, however, was the home of this curious character. At one end of the Salzach bridge and within hailing distance of the

home of Mozart, stands upon a projecting corner, facing a kind of little square, a plain, flat, unornamental four-storied house, with a large portrait and explanatory plate in regard to Paracelsus on the front of it. This was the last residence of the erratic, wandering, doubtful quack and genius. Even his name is in doubt. Some say it was Aureolus Philip Theophrastus Bombast de Hohenheim; others declare that it was only Philip Aureolus Theophrastus, while the Bombast part of it belonged to his father. Paracelsus, which is an atrocious Greco-Latin rendition of his patronymic, is good enough, I trust, for us. Amidee Latour was fond of giving some such advice as this: Remember always to appear to be doing something—especially when you are doing nothing. Paracelsus understood this principle most effectively, and coming upon a time for which his peculiar talent was most fitted, he enjoyed a tremendous success. He seems, in fact, to have been an intellectual giant, apparently doing everything, when in reality he was doing nothing. Irascible, eccentric, fond of trickery, a liar, a charlatan and a quack, a man of undoubted genius with a few really valuable and practical ideas, a glutton, drunkard and common scold, a visionary, an absurd theorizer and a shiftless wanderer, he nevertheless impressed so forcibly the age in which he lived that, to the present day his renown is considerable. Bombast was not a bad name for him. He was born near Zurich some time time about 1493. He never attended any regular school, but was taught some Latin by his father, who was a physician. Then he began to travel, or rather roam about, probably like Goldsmith, supporting himself doing odd jobs and amusing the people with his necromancy. From the back of a cart he may already have begun doling out his sure cures to a gullible and voracious public. He was somewhat of a chemist and, like many other learned fools of that foolish time, toiled night and day in search of the mythic philosopher's stone. Think of the man at 33, boasting of having cured some thirteen princes, all given up, of course, as incurable by the doctors. The world flocked to him and he waxed rich. When a man lies why shouldn't he do it thoroughly? says the quack. Thoroughness is always commendable. The public, "Dear old Grandam" De Quincey calls it, fairly dotes upon a liar. Well, the boasting of Paracelsus paid him munificently. He was appointed professor of something in the University of Basel, and at once began creating a disturbance. He said "reading never made a physician," and so he publicly burned the books of Galen. "Countries are the leaves of nature's code of laws—patients his only books." About this time medicine was overrun and worm-eaten with theorists, spiritualists, humoralists, materialists and all the rest of that ilk, and the turning of the world's gaze back upon nature was really one notable thing done by this grand charlatan—a thing almost good enough to atone for his outrageous falsehoods and cheats. Even to-day a Paracelsus might do some good work in certain quarters. Finally a climax was reached in Basel. Some grand dignitary whom, as usual, he proclaimed to have cured, refused to settle the little matter of the bill. The dignitary controlled too many wires for the irascible professor, notwithstanding his mythic thirteen princes, and so one cheerless day the latter packed up his alembics, retorts, manuscripts, bones, tobacco pouch and whisky flask and resumed his peregrinations. Like an unwelcome fowl in an old well-regulated farmyard, he created an uproar wherever he went. The "profession" of that day was synonymous with blind conservatism and obstinate unprogressiveness, and naturally it could not have been expected to fondle this noisy upstart who laughed at all its pet notions and burned its ponderous tomes. At last he arrived at Salzburg and was given a most comfortable domicile by one of his admiring dupes. He began quarreling as usual with the local profession, and ended by being "pitched out of the window of an inn by the doctor's servants and had his neck broken by the fall." Thus ended the strange career of this meddler in old established customs. Both his life and his teachings were an incoherent medley. He started medicine upon a new tack when he turned its eyes upon the doings of nature and away from the moth-eaten volumes of useless libraries; but in so doing he intermingled much bosh, nonsense, fraud, miserable deception and falsehood. He is dead, however, and may heaven rest his bones more peacefully there beside the blue Salzach river, than he did those of his poor patients whom he cajoled into swallowing his nauseous decoctions. Like the worthy doctor to whom the immortal Gil Blas once served as assistant, he had one system for all his patients, and was a diligent bookkeeper, so to speak, for the next world.

L. Harrison Mettler, M.D.

Medical Expert Testimony.

Dannemora, N. Y., Oct. 15, 1896.

To the Editor:—I have been very much interested in the papers and discussions published in our Journal relative to medical expert testimony. As chairman of the committee appointed in February, 1895, by the Medical Society of the State of New York, to report upon the most feasible plan for improvement in methods of obtaining medical expert testimony, I presented to the committee two reports in January, 1896, the one which was adopted both by the committee and the society being that practically incorporated in the Bill presented by Dr. Suiter, and already published in our Journal. The one which the committee, while favoring the method, thought inadvisable to present to the Society fearing that it would meet with opposition, was as follows:

Resolved, That the Medical Society of the State of New York would recommend the enactment of a law by the legislature providing for the appointment of experts by the courts, and that only physicians of repute and holding a certificate of qualification as hereinafter defined in the particular branch of medical science to which the question calling for expert opinion relates shall be appointed.

The above named certificate of qualification to be issued by the Board of Regents, and duly filed in the County Clerk's office of the County in which the holder of such certificate is a resident; such certificate to be obtained in the following named manner:

The applicant for a certificate of expert qualification shall furnish reliable evidence to the State Board of Medical Examiners that he is legally qualified to practice in this State (New York), is of good standing in the medical profession, and has not had less than five years experience in the practice of the special branch in which he desires to stand as an expert, and shall also pass a satisfactory examination in the branch or branches in which he is to become an expert.

On the passing of such examination to the satisfaction of said Board, there shall be issued to him, in the same manner as a license to practice is now issued, a certificate of qualification to give expert testimony in the particular branch therein specified, and when properly filed all physicians holding such certificates shall be eligible for appointment by the courts, or may be called by defence as expert witnesses.

The testimony of any medical witness called by either plaintiff or defendant, not holding such certificate shall be restricted to evidence of fact.

My own opinion is that could such a qualification test be set up, it would practically settle the question of obtaining reliable expert testimony, and eliminate most of the objectionable features of the present system. It would seem that such a qualification could be demanded by the State without the infringement of any constitutional feature of the law, or an abridgement in any sense of the rights of the citizen or practitioner.

There could be no question, it seems to me, as to the right of the State insisting upon such a qualification, no more than in its insistance upon a certificate of qualification to practice general medicine. One of the objections raised by some of the committee to this feature was that physicians would not qualify; this, I think is erroneous, for any duly qualified practitioner who cared to become an expert could not object to this

method of examination. It is to be hoped, however, that many who, under our present system, might pose as experts, would not qualify as such. I believe that qualification is the first step in the right direction, and that other remedial legislation would quickly and naturally follow.

Very respectfully, J. B. RANSOM, M.D.

Congress of Leprologists.

NEW YORK, Oct. 14, 1896.

To the Editor:—I have sent the following to the American Public Health Association. Will you kindly publish in your next number?

A Congress of Leprologists and delegates of all civilized governments will in all probability, be convened next year for the suppression and prevention of leprosy. It was at first proposed to hold this congress at Bergen, Norway, out of compliment to Hansen. As the latter has renounced his claim, and left that question to be decided by those who will work for the scheme, and as there is among the present workers a division of opinion as to the comparative merits of London and Moscow, nothing can be said for the present, as to the place where the congress will meet. Invitations will be issued, we hope, by one government to the other governments, to send each an official delegate. These delegates will form a permanent international committee, whose business it will be to formulate laws suitable for each country. The question of the suppression and prevention of leprosy, is of paramount importance to Canada, Mexico and the United States. Lord Aberdeen, President Diaz and President Cleveland have already been appealed to; the first through Dr. Smith, Medical Superintendent of the Leper Asylum of Tracadie, and Inspector of Leprosy for Canada; the second through Dr. Carmona Y. Valle, the President of the Second Pan American Medical Congress to meet in the City of Mexico, next November; and President Cleveland, through the Secretary of State.

There are in Canada three centers of leprosy; a Scotch, Irish and French one in Nova Scotia and New Brunswick; a Chinese center in British Columbia and a possible Norwegian one about Winnepeg, from communication with our States, the Dakotas and Minnesota.

In the United States there is danger from the Chinese invasion on the Pacific coast, and from the Norwegian center above mentioned, but the greatest peril consists in the possible contamination of our southern negro race from the Louisiana and West Indian lepers, and possible contamination from the Hawaiian islands.

Mexico is exposed to Chinese and Japanese invasion and, moreover, the harbors of Mazatlan and Acapulco may receive inoculation from the 27,000 lepers of Colombia, South America, through mercantile intercourse.

Queen Victoria, by her private secretary, Sir Arthur Bigge, has expressed sympathy when informed of this project and the matter has been referred to her responsible advisers.

As this memorial did not reach the Advisory Council of the American Public Health Association in time to be brought before the recent meeting at Buffalo, I take the liberty to bring the matter under the eyes of the Association in an open letter, urging that the influence of the Association, which is known to be great, be brought to bear upon the governments of Canada, Mexico and the United States, so that we may obtain from each of them a delegate to the proposed Congress.

Very Respectfully, ALBERT S. ASHMEAD, M.D.

PUBLIC HEALTH.

Consumption Among the Colored Population.—A writer in the *Medical and Surgical Reporter* for October presents the statistics of eight of the principal cities of the South which prove that the proportion of deaths from consumption among the colored races as compared with the total mortality, is more than 50 per cent. greater than that of the white population, while the death rate per thousand from this disease is nearly three times as great.

The Bubonic Plague.—The *Lancet* states that an outbreak of fever, attended by some of the features of what is alleged to be bubonic plague, has taken place at Bombay and has been attended by many deaths. The occurrence has naturally excited a good deal of alarm among the native population, many of whom have left the city. The troops of the British and native armies have been temporarily prohibited from entering the affected locality, and the government has appointed a committee to inquire into and report upon the subject. Mr. Dutt has arrived at Calcutta with the special object of aiding the committee in their investigation. The outbreak is probably of the same nature as that which occurred lately in China and Hong Kong. The *British Medical Journal* adds: We hope no time will be lost in inviting Dr. Yersin to practice his serum injections for the cure of the plague. His success with it has been reported in this JOURNAL.

Tetanus Antitoxin in Brooklyn.—The Department of Health of Brooklyn, N. Y., has issued under date of October 8, a circular regarding tetanus antitoxin, as follows:

"The health department is now prepared to furnish to physicians and hospitals antitoxic serum for the treatment of tetanus. Each vial will contain 20 c. c. of the serum, but the dose will vary with the age of the patient, the severity of the attack and the time in the disease when the treatment is begun. The remedy is administered in the same way as diphtheria antitoxin, by hypodermic injection, using a large syringe and carefully sterilizing the syringe and the skin before making the injection. Some point on the anterior surface of the body is preferable for the injection. Too much emphasis can not be placed on the vital importance of injecting the serum at the earliest possible moment, as every hour's delay decreases the chances of success and requires larger doses to overcome the amount of toxin produced and absorbed. When the treatment is begun at the first appearance of tetanic symptoms, 20 c. c. should be injected at once, and 10 c. c. at intervals of six hours for the four following days. If the treatment is not begun until three or four days after the onset of tetanic symptoms, 20 c. c. should be used at once, and repeated at short intervals according to the results. The use of the serum does not preclude the employment of other methods of treatment by the use of antispasmodics. The wound should be treated with some strong preparation of iodin, such as strong tincture, to destroy the toxin in it. Carbolic acid and bichlorid of mercury are of little use for this purpose. The exact value of this method of treatment has not been fully determined, and it is very desirable that full reports be sent to the department of each case and the result of the treatment."

Baths for Miners.—On the European continent mining companies have, of late years, devoted much attention to providing facilities for the miners to perform their ablutions and to change their wet and dirty clothes, so as to enable them to return home refreshed in dry and warm clothes. A very elaborate lavatory has been erected at the Hibernia mine, Gelsenkirchen. The plant comprises shower baths for 1,600 miners and private bathrooms for the managers and overseer. The success that has attended the use of lavatories in Westphalia led to the erection of two admirable establishments at the Dudweiler and Kreuzgraeben collieries, in the Saar coal field. At Dudweiler the massively built house, which is in direct communication with the mouth of the adit, has an internal area of 108 by 61 feet. The height of the roof is 16 feet. Two high double walls divide the building into three sections, two of which serve for the married miners and the other for the young unmarried ones. Light is furnished by forty-five windows and three skylights, and, at night, by three arc lamps. The floor is of cement, with a slope of 1 in 40. There are fifty-five shower baths, each in a cell, five of these being supplied with cold water and the others with water heated in summer to 86 degrees F., and in winter to 95 degrees F. Each cell

measures 4 feet 6 inches by 3 feet 3 inches, and is used by two miners at the same time. The cold-water cells are somewhat smaller and are arranged for one person only. In the dressing rooms there are a number of forms, and for each man's clothes there is a hook and line running over pulleys at the ceiling. The clothes hung up at the ceiling dry very rapidly. Each hook is marked with the man's lamp number. The building is heated by steam pipes. For a bath, seven gallons of water are required. Of the 1,900 miners employed in the mine 1,200 bathe regularly. Seven hundred miners, however, live in barracks where ample washing accommodation is provided. The lavatories have been in existence at Dudweiler and Kreuzgraeben colleries since 1891, and have answered their purpose admirably.—*Health*, October 3.

Detention Hospital for Lepers at Honolulu.—Assistant-Surgeon Ammen Farenholt, U. S. N., writes to the *Boston Medical and Surgical Journal*, September 3, the following account of the above institution: "In December last, while at the Hawaiian Islands, on the U. S. S. *Baltimore*, I visited Kalihi, the hospital of detention for lepers, three miles north of Honolulu. The primary object of this institution is to afford shelter for the patients condemned as lepers and awaiting transportation to the Island of Molokai, the government leper settlement, and also to serve as a home for the suspects, those in whom the symptoms of the disease are not sufficiently well marked to admit of a positive diagnosis. There are also 30 little patients here, the children of the lepers at Molokai; 23 are graduated from the institution, that is, having passed six or seven years under observation, and showing no signs of disease, they were allowed to go into the common walks of life. Only one of these has become a leper, and he lived subsequently with an infected family in Honolulu. In about one-third of the cases both the father and mother were lepers. All inmates are carefully watched and made to remain in the quarters assigned to patients in the same condition as themselves. The hospital consists of five or six one-storied whitewashed houses, arranged around a square filled with palm-trees and beautiful beds of flowers. Sisters of Charity from Syracuse, N. Y., have charge of the hospital. Every month the suspects brought in by government spies are examined by a board of five physicians, also appointed by the government. The patients appear in the examining room, and are inspected by each medical officer in turn, who writes his verdict opposite the number of each case on the list before him. The examination being over, the recorder reads off the numbers, and the members in turn give their opinion, the words *leper*, *non-leper* or *suspect* being used. Three votes out of the five are necessary for a decision. The first are held until a sufficient number are waiting, and then they are transferred to Molokai; the second are allowed to return to their homes; and the third are retained for further observation. An examination of suspects was being held at the time of my visit, to which I was kindly invited by the senior physician. Facial paralysis, however slight, absorption of joints and later of the bones themselves and a reddish or a whitish macular eruption, are the most common primary lesions, as the disease is seen in Hawaii. The population of the islands is about 38,000 (native Hawaiian). At Molokai there are 1,100 lepers; and it is said that only one in every four is detected. Thus out of a population of 38,000, 4,000 are lepers, almost 12 per cent.

The Daily Medical Inpsection of Schools in a Great City.—We think it is not generally known, even among those who are considered to be sanitary adepts, that Boston has, after years of effort, the benefit of a genuinely systematic school inspection. The August number of the *Archives of Pediatrics* shows how this innovation was secured by the Board of Health as a consequence of a very severe epidemic of diphtheria. The general plan of operations, that has now been in force for a year, and that was, as we believe, devised or matured by Dr. S. H. Durgin, is the following: The city was divided into fifty districts, giving an average of about four school-houses and fourteen hundred pupils to each district. No difficulty was experienced in finding well-qualified and discreet physicians who would undertake the duties prescribed. The Board appointed one physician for each district, with a salary of $200 a year, plus the honor and satisfaction of serving in a good cause. His duty is to make a visit to each master's school daily soon after the beginning of the morning session. The master receives from each of the teachers in his district, early reports as to the appearance of symptoms of illness in any pupil in their charge. These reports are given to the visiting physician, who at once examines the reported children and makes a record of his diagnosis and action in books furnished for this purpose, and kept in the custody of the master. If the visiting physician finds the child too ill to remain in school, he advises the teacher to send the child home for the observation and care of its parents and family physician. If the illness is from a contagious disease, the child is ordered home and the case reported to the Board of Health. The medical inspectors never undertake to give professional treatment in any case. They merely point out the need of professional treatment where the need exists. The treatment itself must be received from the family physician or in the hospitals or in the dispensaries. Incidental to this school inspection the same corps of medical men is also serving as agents of the Board of Health in the control of contagious diseases which are treated at home. The Board of Health sends to each of the school inspectors, every morning, a full list of the cases of diphtheria and scarlet fever which have been reported during the previous twenty-four hours. Each medical officer selects the cases reported in his district, visits them to see if they are properly isolated at home, leaves a card for the attending physician, politely informing him of the official visit and reports his approval or disapproval of the isolation at once to the Board of Health for its action. If the patient is properly isolated, the officer places a card on the door of the room to indicate the official designation of such room for the isolation of the patient. If the case is not properly isolated and such isolation can not be commanded at home, he reports such facts to the Board of Health, and such patient is at once ordered to the hospital. He makes another visit to the patient. This school inspector and agent of the Board of Health is indirectly held responsible for the proper isolation of the patient at home, for causing the patient's removal to the hospital when necessary, and for the patient's release from isolation; in other words, the Board of Health is thus provided with trustworthy information upon which it can act for the best protection of the schools and the public against the spread of contagious diseases.

NECROLOGY.

A. B. Shaw, M.D., St. Louis, aged 49 years. Dr. Shaw died a martyr to duty. Infected in the performance of duty years ago, his knowledge of the clinical course of that infection and its dreadful possibilities placed him often in a frame of mind to which the physical suffering which it entailed bore no proportion, and only those who were made the confidents of his mental agony can faintly realize what suffering there was for years hidden under the pleasant exterior of an apparently healthy body.

Sir George Murray Humphry, aged 76. "Humphrey of Cambridge," one of the greatest medical figures of our time, revered and loved by generations of medical men and honored by individuals and scientific associations at home and abroad. The new School of Medicine at Cambridge is his most lasting monument. The *Lancet* mentions that he treated cases of tetanus by giving nourishment in all possible ways and tobacco

smoking to excess. Good port wine was his favorite internal remedy. This treatment always soothed the patient, and the writer has seen three cases recover under it. He commonly took his holidays abroad, and visited continental hospitals and museums, seldom failing ts bring back safely packed in a portmanteau some fragments of humanity which would enrich the Cambridge collection. Indeed, he looked upon the museum as only second to the hospital in importance. He often said that he turned every moment of his life to some account. Even his severe illnesses were not without their utility, for his dangerous attacks of phlebitis furnished medical literature with one of the best monographs on the subject of venous thrombosis which has ever been written. One of his aphorisms to his pupils was: "Eyes first, fingers next, ears last."

SOCIETY NEWS.

Second International Congress of Charities and the Protection of Children.—Nine governments were officially represented at the Congress: United States, Switzerland, France, Hungary, Portugal, Sweden, Spain, Luxemburg, and the Argentine Republic. The resolutions adopted evidence the modern tendency to a more rational conception of the preponderant importance to the State of the correct physical and moral development of the child, and the responsibility of the community to the children of the poor and degraded. They endorsed the formation of societies to supply medical care and assistance to mothers before and during confinement, with rest for four weeks afterward, and advice and assistance for mother and infant during the entire nursing period, in charge of local committees in every district with over twenty-five infants to be thus protected; crèches near industrial establishments, under strict daily medical supervision, with guarding classes for children after school hours until the parents return from work; more judicious education of the young especially in morality, in view of the increasing juvenile criminality evidenced by statistics produced; complete separation of the young from adult criminals, and closer organization of all charities according to English and American methods. The Congress also voted that the expense of assistance to foreigners should be reimbursed to the community by the State, and that the indigent should in every case be returned to their home by birth or naturalization.

PRACTICAL NOTES.

Pernicious Anemia Cured with Bone Marrow.—A young soldier was brought to the hospital in pernicious anemia consecutive to an attack of dysentery. He was so feeble that he could not rise; there was malleolar edema, ascites and dilatation of the right heart with systolic murmur at the apex. Iron and arsenic produced no effect. Blumenau cured him in two months and a half with the entire disappearance of the complications by giving him 90 grams a day of raw bone marrow, spread on bread or taken in soup, with no other medication.—*Semaine Méd.*, September 23.

Sulphur Baths in Whooping Cough.—Among the many treatments recommended for this disease, the *Journal de Méd. de Paris*, September 20, describes Josset's prolonged baths, with 0.75 gr. sulphureted potassa to the liter, the temperature at 97 degrees, and the duration of the bath from twenty-five to forty-five minutes, according to age, once a day, the head alone exposed above the water. With this treatment all complications were avoided, the sulphur evidently acting on the special whooping cough bacillus, with a beneficial antiphlogistic effect on the bronchial mucosa and a revulsive action on the skin. It is rarely necessary to administer more than fifteen baths as the cure is usually obtained long before this.

Cause of Inefficacy of Sublimate Spray as a Disinfectant.—Chavigny has found that the sublimate simply affects the outer surface of the microbes, producing a superficial layer of coagulated protoplasm, which temporarily destroys their virulence but readily washes off, when they recover all their former virulence. Hydrosulphate of ammonia is one of the substances that promptly restores them to their previous activity. Among other experiments, thin layers of tuberculous sputa exposed for a long while to direct sublimate spray, produced fatal tuberculosis every time when rabbits were inoculated with them.—*Annales de l'Institut Pasteur*, June.

Painless Treatment of Ophthalmia Neonatorum.—Hjort of Christiana states that the same results obtained with the classic treatment of this affection can be secured with much less trouble and inconvenience, by first dropping in oxygenated water at 1 or 1.5 per cent., which causes the pus to effervesce. The eye is then washed out with 2 per cent. boricated water, working the lids slightly until the pus has all been cleaned out, when the solution of nitrate of silver at 1 per cent is gradually instilled. This method does not require the reverting of the eyelids, but it should be repeated four times a day at first. It can be safely intrusted to a well-trained uurse.—*Semaine Médicale*, September 23.

On the Misuse of the Pessaries.—Dr. A. J. C. Skene, *Brooklyn Medical Journal*, September, participated in a discussion of Dr. John Byrne's paper on the needs of minor gynecology, before the Gynecological Society of the city above named. He generally confirmed the opinion of Dr. Byrne that the misuse of pessaries, in the treatment of uterine retroversion, was every day tending to produce conditions, remediable in themselves, that are absolutely incurable; that too many of these implements as sold in the instrument-makers' stores were viciously devised to produce an atrophy of the tissues impinged upon and thereby converting simple retro-displacements into incurable flexions. Dr. Skene's remarks were in part as follows: "With reference to the use of the pessaries, and that is only one thing in which we are apt to go astray in minor gynecology, I have certainly had some experience, though limited no doubt, compared to that of Dr. Byrne. There was a time when I introduced very many pessaries, but now I think I divide my time about evenly between removing those that have been introduced and using others that give relief. It is an unfortunate thing that very few have had practice and patience enough to master the mechanisms of displacements and the mechanic appliances for their relief. I have no doubt there are hundreds of men who do laparotomy and all surgical operations in the domain of gynecology who could not fit a pessary to correct a displacement any more than they could make boots to fit themselves."

Tubercular Meningitis Ending in Recovery.—Dr. Jenssen in the *Deutsche medicinische Wochenschrift* reports a case of the above description. The writer adverts to the rarity of recovery in this disease. In a few cases the diagnosis has been established by finding evidence of a past tuberculous meningitis, the patient having died of some other cause. In Freyhan's case of recovery, tubercle bacilli were found in the fluid drawn off by spinal puncture. The author then records the following case: A man, aged 19, was admitted in May, 1892, with headache, stupor, vomiting and constipation. The temperature was raised and at one time the pulse only numbered forty-two per minute. Later there was ocular paralysis and retraction of the head. Some fourteen days after admission the patient began to improve and he was discharged well a month afterward. Three years later he was again admitted into the hospital with early phthisis. The disease ran a rapid course and he died four months later. At the necropsy a yellow mass, composed of minute tubercles, and measuring four centimeters long and two centimeters wide, was found running along

each side of the longitudinal fissure. The pia mater was of a milk-white color in several places over the convexity of the brain; there minute tubercles were also seen. The first-named tubercles consisted of detritus, fat and a few cells, but no fibrous tissue; and the last-named of fibrous tissue and a few cells. In no instance were tubercle bacilli found. At the base of the brain the same white spots containing tubercles were seen about the chiasma and Sylvanian fissures. In these white areas the pia mater and arachnoid were adherent to the underlying brain tissue. As regard the treatment of this attack of tuberculous meningitis, the head was shaved and iodid of potassium was given in large doses; 8 g. were at first administered in the day, but this quantity was rapidly increased. The patient took as much as 950 g. during the illness. There was a slight coryza, but no other unpleasant symptom. All the secretions and excretions gave a marked iodin reaction. The author thinks that the iodid had undoubtedly a favorable effect on the disease. This treatment is not new, but these large doses of iodid have not within the author's knowledge been used before.

New Operation for Luxation of the Tendons.—Luxation of the tendons does not occur frequently, but is a source of great annoyance when it does happen. An article in the *Revue de Chirurgie* for September reviews the cases on record and the various methods of treatment, concluding with a new operation performed by Kousmine of Kazan. The patient had dislocated the tendons in an accidental fall two years previously, when his foot had slipped out to one side. Bandaging had proved ineffectual, and in spite of every precaution in stepping, the peroneal tendons sprung out of their normal position, especially in supination and flexion, producing great pain and causing the foot to slip, until walking was practically impossible. A half moon incision was made to the bone behind and below the external malleolus, and a trapeze-shaped space on the periosteum cut around, the base of the trapeze corresponding to the lower edge of the malleolus, after which the enclosed small, flat piece of bone was cut out with the scissors and raised perpendicularly to the malleolus. A couple of nickel nails were inserted to hold this little piece of bone up like a trap door, and keep the tendons in place. A plaster cast was then applied. The pain was trifling and soon passed away. There was no fever. In seventeen days the cast was changed, the nails withdrawn, and the tendons found in their normal position, with a considerable elevation thrown up on the outside of the malleolus. Another plaster cast was applied and the patient left the hospital with advice as to slight massage and exercise after removing the cast in twenty-eight days. The results of the operation have proved curative and brilliant. The patient is entirely relieved of his functional troubles. The neoformation of the bone answers its purpose perfectly, while the traumatism was insignificant in the simple operation, as neither the tendons nor the aponeuroses were wounded.

MISCELLANY.

Ammonia in Alcoholism.—Dr. Baratier recommends, in *El Siglo Medico*, the addition of ammonia to wine or liquor in order to produce a distaste for alcoholic beverages. After a few doses the disgust to the mixture becomes so intense that even the sight or smell of wine is unpleasant.—*St. Louis Med. Journal*, October.

The Significance of the Diazo Reaction in Phthisis.—Beck, from investigations carried out in the Institute for Infectious Diseases at Berlin, has come to the conclusion that the appearance of the diazo reaction in the urine of patients suffering from phthisis makes the prognosis unfavorable, while its long continuance forebodes an early death.—*Boston Med. and Surg. Journal.*

Bahia's Participation in the Pan-American Medical Congress not Possible.—The *Gazetta Medica da Bahia*, Brazil, states that the profession at Bahia does not expect to take any part in the Pan-American Congress, either personally or by scientific contributions. The circulars in regard to the Congress have only just been received at Bahia, but this delay is not the cause of the abstention, but the fact that the same date has been appointed for the first medico-surgical congress to meet in that city.

Trained Nurses in California.—The *Medical Record* states that many trained nurses from Philadelphia and Baltimore have recently been induced to go out to San Diego and other places in Southern California on the representation that they could find employment there that would pay them $20 to $25 a week. On arriving there, however, they have found that there was no work for them, and that, even if there were, they could not obtain any such remuneration for their services, and they have in many cases had to send to their friends in the East for money to enable them to return home.

Provision for Baltimore Indigent Lying-in Women.—Recognizing as is stated, that the Maryland Lying-in-Hospital, of Baltimore, a body corporate, is well and firmly established in said city, and particularly well equipped for the treatment of lying-in women, and that it is desirable that the benefits and advantages of such hospital should be extended to the indigent lying-in women of the State of Maryland, so that skilled and humane treatment be afforded them, the General Assembly of the State enacted, in chapter 148 of the Laws of 1896, that the sum of three thousand per annum be appropriated for each of the years 1896 and 1897 for the maintenance of free treatment for indigent lying-in women in said hospital.

Chairs for Maryland Salesladies.—A Maryland statute of 1896 provides that all proprietors or owners of any retail, jobbing or wholesale dry goods store, notions, millinery or any other business where any female help are employed for the purpose of serving the public in the capacity of clerks or salesladies, shall provide a chair or stool for each one of such female help or clerks, in order that during such period as they are not actively engaged in making sales or taking stock they may have an opportunity to rest. The penalty for the first offense is a fine of from $10 to $100; and in the event the owner or proprietor shall continue to disobey, he shall be subjected to a fine at the rate of one dollar a day, daily, for every chair he fails to furnish his said employes.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about $180, will be made on July 14, 1897, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but can not have been published, and must be received by the secretary of the college on or before May 1, 1897. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1896 was not awarded. THOMAS R. NEILSON, Secretary.

Illinois State Conference of Charities and Corrections.—It has been found necessary to change the date of the proposed State Conference of Charities and Corrections. The conference will take place on Thursday and Friday, Nov. 12 and 13, 1896, at the Capitol in Springfield, and not November 18 and 19, as pre-

viously announced. Among those who it is hoped will take part in the program are H. H. Hart, secretary Minnesota State Board of Charities; Ernest Bicknell, secretary Indiana State Board of Charities; Bishop Spalding, Dr. Julia Holmes Smith, Miss Jane Addams, Judge Carter of Chicago and others. Complete program will be published later. Classes for the State Schools for Blind and for the Deaf and Dumb will give exhibitions. Governor and Mrs. Altgeld will receive the Conference at the Executive Mansion. Excursion rates of a fare and a third will be made by the railroads, and special rates will be obtained at the hotels and boarding houses in Springfield. For any information or services desired, please address GEO. F. MINER, Secretary State Board of Charities, Springfield.

Cause and Prevention of Glaucoma.—The etiology of glaucoma is still disputed, but Schoen of Leipsic, the new professor of ophthalmology, asserts in an article in the *Wien. klin. Rundsch.*, Nos. 26 to 31, that no one need lose his sight from this cause, unless he chooses. It can always be prevented if the eyes are seen in time by an expert and his warnings heeded, as the invariable cause is excessive strain in the effort of accommodation. As the number of the efforts increase with age, the strain increases and glaucoma is the result. The particulars of the last 140 cases he has treated are: 48 per cent. hypermetropic; not one had possessed a distance lens. Astigmatism was present in 33 per cent; in none had the astigmatism been corrected. In 20 per cent. there were no glasses, or they had been utterly inadequate. Nearly twice as many cases of glaucoma occur among women as in men, the former shrinking from wearing glasses until too late. What may be a trifling effort for the eyes at first, becomes in the course of years an exhausting strain, and while this strain of over-exertion in the efforts of accommodation produces anatomic changes which lead directly to glaucoma in time, yet any constitutional morbid tendency, any weakening or depressing cause, violent coughing, night watching, etc., may hasten its appearance.

New Dental Law for Maryland.—Chapter 378 of the Maryland laws of 1896, which was approved April 4, 1896, repeals Article 32 of the Code of Public General Laws, entitled "Dentistry," and reënacts the article with many changes in it. The new law makes it unlawful for any person to practice dentistry in the State unless he shall have obtained a certificate therefor. It then provides that there shall be a State board of dental examiners, which shall consist of six practicing dentists of recognized ability and honor, who have held regular dental diplomas for five years. They are to be appointed by the governor out of a list proposed by the Maryland State Dental Association. Six years is the regular term of office. Any member who shall be absent from two successive regular board meetings shall cease to be a member of it. The regular meetings are to be held in May and November of every year, with special meetings as required. Any person 21 years of age, who has graduated at and holds a diploma from a university or college authorized to grant diplomas in dental surgery by the laws of any one of the United States, may be examined by said board with reference to qualifications, and upon passing an examination satisfactory to said board, his or her name, residence or place of business shall be registered and a certificate shall be issued to such person. Any graduate of a regular college of dentistry may, at the discretion of the examining board, be registered without being subjected to an examination. A temporary certificate for a specified time may be issued by the officers of the board to any applicant holding a regular dental diploma duly registered by a board of dental examiners created by the laws of any one of the United States, but no such certificate shall be issued for any longer time than until the next regular meeting of the board. The fee for this temporary certificate shall be $5. Transcripts from the book of registration, certified by the officer who has the same in keeping, with the seal of the board, shall be evidence in any court of the State. Every person shall be said to be practicing dentistry, within the meaning of this act, who shall for a fee, salary or other compensation, paid either to himself or to some one else for services rendered, perform operations or parts of operations of any kind pertaining to the mouth, treat diseases or lesions of the human teeth or jaws, or correct malpositions thereof. The penalty for a violation of these provisions is a fine of not less than $50 nor more than $300, or confinement in jail not more than six months. But nothing in this article shall be so construed as to interfere with the rights and privileges of resident physicians and surgeons or with persons holding certificates duly issued to them prior to the passage of this act; and dental students operating under the immediate supervisions of their instructors in dental infirmaries or dental schools chartered by the general assembly of Maryland. Money received for examination and registration, the fee therefor being $10, shall be used toward paying the expenses of the board. All fines received are to be paid into the common school fund of the city or county in which conviction takes place.

Recent Additions to the Army Medical Museum.—One of our military papers, the *Army and Navy Journal*, in its issue of October 17, has an article entitled "New Surgical Appliances," which gives the results of an investigation into the additions made to the Army Medical Museum during the past year and particularly with regard to those that relate to the transportation of wounded. The article displays an excellent knowledge of the subject. It is as follows:

The last Congress appropriated $5.000 for use of the Army Medical Museum, at Washington. A portion of this sum has been expended in the purchase of field appliances used by foreign countries for exhibition in the museum side by side with the improved equipments of the hospital corps of the United States Army. Many of the new foreign acquisitions have been received and a place has been found for their permanent display. The countries thus far represented are Prussia, Switzerland, England, France, Austria-Hungary, Norway, Spain and Japan, and the collection includes litters on wheels and for hand bearers, knapsacks, surgical pouches, chests and instruments, and articles for the use of the sanitary and culinary departments of the hospital corps. The litters and general appliances of the European armies, excepting possibly England, are characterized by exceeding bulkiness and weight, though admirable in many other respects. The Prussian and Spanish mattresses, in particular, are remarkable for comfort and hygienic qualities. The Norwegian litter is an unwieldy affair, and is very uncomfortable. The Japanese have a light and easy bamboo bed on wheels, with carriage top, resembling the jinriksha, which has only one undesirable quality—its fragility, the bamboo offering little resistance to great weight and shocks. The Japanese leather-bound medical chests and French pouches and panniers are admirable for completeness of outfit and economy of space. Some tiny surgical pouches of the Austrian army are marvels in this respect. Other notable articles are a Spanish seat for carrying wounded men, and the English and French litter carriages and beds.

The recent additions to the collection of articles used in the United States service are important and compare favorably with the best similar appliances in use abroad. Our new litter is much lighter than any other, except the Japanese, is much more durable than that, and in every respect is considered admirably adapted to the use of our arms. The new regulation adjustable sling, which remains on the bearers, is a great improvement over the old method of bearing the litter, both as regards the comfort of the wounded person and of the bearers. The Quartermaster's Department has adopted this litter, and each company is to receive two litters. The new drill regulations for the Hospital Corps, recently issued, incorporates a revision of the manual of the litter adapted to the new improvements. Some other changes have been made in the regulations, such as the abolition of side arms for Hospital Corps men, and changes in the manner of packing and transporting clothing. The new operating table for field hospital work, which finds a place in the collection, seems as nearly perfect as science and skill can make it. The latest improvement is an arrangement of cranks by which a patient may be lifted or lowered, or his position changed without the interposition of the attendant's hands.

Of late acquisitions the telephonic bullet probe and forceps, made by Tiemann & Co., New York, is a curious mechanism and would be of greater value if the practice of probing were more generally pursued. The instrument consists of a band of metal to be placed around the head of the surgeon, a bell being affixed near the ear. From the bell extends a wire connecting with the probe, both being in communication with an electric battery. The principle is that the bell shall ring when the probe strikes the bullet. It is customary now, however, and has been for some years, to allow gunshot wounds to heal without suppuration, and the probe is not employed unless the ball is pressing upon some vital center, or there appear symptoms of poisoning. If a wound be made by new and clean ammunition there is little or no danger of poisoning. If a cartridge has been carried about a long time in the pocket or other exposed place, it is apt to accumulate foreign matter of a deleterious nature.

Other recent additions to the museum are some English water filters and sterilizers, a litter with disjointing parts and detachable slings, adopted by the Massachusetts Volunteer Militia, and cabinet field desks of the United States Army, which may be folded in the form of chests for transportation.

Souvenir Volume of the Centennial of the Faculte de Medecine.—This large quarto and the accompanying atlas of 130 portraits is a historical sketch of the institution and what it has accomplished, compiled by a special committee and published at the expense of several of the medical publishers of Paris. It is a "publication de grand luxe," as evidenced by the price, 100 francs, or about $20.

Hospitals.

Typographical Union Hospital.—At the sixth day of the convention of the International Typographical Union the subject of providing for the erection of a hospital in connection with the Childs-Drexel Home for Old Printers, which is located in Colorada Springs, came up for discussion. Fifteen thousand dollars was provided by the International Union for the building of the hospital, which amount is to be contributed by the printers all over the land as a popular subscription. The amount is expected to be raised by Christmas.——The soliciting committee of the Augusta, Me., city hospital has reported subscriptions to the amount of $5,500. This amount assures the purchase of a hospital site this fall.——The annual meeting of the Board of Directors of the Kensington Hospital, Philadelphia, for Women was held October 12. During the last year 287 patients have been treated in the wards, and 274 in the dispensary, making an increase of 127 over the previous year. Four hundred and sixty-two operations have been performed and the cost of maintenance for the year was $10,723. An appeal is made for additional funds to erect a new building and also to provide for the care of an additional number of free patients.——The new building erected as an annex to the Flower Hospital of New York was opened for the reception of patients October 2.——The corner stone of the St. John's new hospital at Long Island City, L. I., will be laid November 1.——The executors of the estate of the late Very Rev. Fr. McCabe, who was pastor of St. Charles church, and vicar general of the Providence diocese, who died several years ago, have intimated that $500 will be shortly forthcoming from this estate with which to establish a free bed in the Woonsocket, R. I., hospital. This is in fulfillment of the intention of the deceased rector.

Washington.

Located by the X Rays.—Dr. John Van Renssalaer of the surgical staff of the Garfield Hospital successfully located a bullet by the X rays and removed it on the 8th inst. The bullet was located deep and posterior to the hip joint and had made the woman practically an invalid.

First Medical Examination for Practice in the District.—The first examination of physicians for license under the new medical law, was held on the 8th to 11th inst., in the rooms of the Civil Service Commission. The first three days were devoted to written, and the last day to oral examination.

Changes at the Garfield Hospital.—Dr. A. L. Stavely, who has been the surgeon-in-chief and superintendent of Garfield Hospital for three years past, severed his official connection with that institution on the 1st inst., in order to resume private practice. Dr. Stavely tendered his resignation several weeks ago, and it was accepted in a very complimentary letter from the board of directors. Dr. Stavely for three years was assistant to Dr. Howard Kelly of Johns Hopkins Hospital, Baltimore. Dr. M. D'Arcy Magee will act temporarily at Garfield Hospital in place of Dr. Stavely, while Dr. J. Milton Heller is to serve as senior resident physician.

Changes at the Central Dispensary and Emergency Hospital.—The following is the medical staff of the hospital and the medical assignments for the ensuing year: Health Officer, Dr. W. C. Woodward; Sanitary Officer, John A. Frank. Consulting staff: Drs. N. S. Lincoln, J. Ford Thompson, W. W. Johnston, J. Taber Johnson and G. L. Magruder. Diseases and injuries of the eye and ear: Dr. Swan M. Burnett. Diseases and injuries of the throat and chest: Dr. T. Morris Murray. Diseases and injuries of children and orthopedics: Dr. William H. Hawkes. Diseases peculiar to women and acute venereal of women: Dr. H. L. E. Johnson. Surgical diseases: Dr. James Kerr. General diseases, skin diseases, and venereal of men: Dr. G. B. Harrison. Mental and nervous diseases: Dr. E. L. Tompkins. The emergency department has been placed back in its original position under the executive officer, with assistants in Drs. W. P. Carr, A. A. Snyder and John Van Rensselaer. A total of $15,000 is asked for by the hospital authorities to run the hospital next year, and the suggestion made last year as a means of liquidating their present indebtedness is repeated. The indebtedness of the hospital is $20,000, on which an annual interest is paid. A total of 10,433 new cases were treated in the dispensary during the year, and in the same period 2,828 new cases were cared for in the emergency department, with 1,925 redressings. The number received into the wards of the hospital for treatment and care was 189; deaths 49; autopsies 28; ambulance calls, 421; surgical operations 1,443.

Applicants for Police Surgeon.—Twenty-five young medical men recently took the examination for the position of Police Surgeon. President Kleinschmidt, of the Board of Medical Supervisors, conducted the examination.

Entitled to Licenses.—Physicians who were registered at the health office at the time of the passage of the recently enacted medical practice act are entitled to licenses upon application to the board of medical supervisors. Blank forms for application can be obtained at the health office upon request in person or by letter.

Medical Association Elects New Members.—At the stated meeting of the Medical Association, recently held, the following new members were elected to active membership: Drs. Chas. L. Allen, Hugh C. Duffey, Robt. H. Graham, E. M. Hasbrouck, H. Warfield Howell, G. T. Howland, Francis Leiben, R. F. Mason, Jr., W. L. Masterson, E. D. Perkins, C. V. Petteys, F. M. Phillips, M. S. Patten, A. M. Ray, E. M. Schaeffer and Elmer Satheron.

Medical Society Elects New Members.—At the recent meeting of the society the following new members were elected: Drs. Walter A. Wells, Edwin Gladmon, John H. Metzerott, Abbie C. Tyler, Phoebe R. Norris, Thomas B. Crittender, W. R. Maddox, Susan J. Squire, A. L. Stavely, Walter D. Cannon, Adeline E. Portman, W. A. Caldwell. At the regular weekly meeting of the society, held on the 14th inst., Dr. J. C. McGuire read a paper entitled "Electrolysis in the Treatment of Diseases of the Skin," and Dr. L. Eliot read a paper on the subject of "Suture-Clamp Operation for Hemorrhoids."

Washington Obstetrical and Gynecological Society.—The 281st meeting of the society was held on the 16th inst. and was followed by the annual banquet. This meeting was the business meeting of the society for the election of officers and

committees for the ensuing year, and resulted in the re-election of all the former officers. President, Dr. G. B. Harrison; Vice-presidents, Drs. S. S. Adams and G. N. Acker; Treasurer, Dr. John Van Renssalaer; Recording Secretary, Dr. G. W. Cook; Corresponding Secretary, W. S. Bowen.

AUXILIARY COMMITTEE ON TRANSPORTATION FOR THE SECOND PAN AMERICAN MEDICAL CONGRESS.—The International Executive Committee has appointed the following physicians as an auxiliary committee on transportation for the Congress: Drs. J. B. Murphy, Chicago; Robt. Sattler, Cincinnati; A. Walter Smith, Herkimer, N. Y.; J. B. Roberts and W. B. Atkinson, Philadelphia; A. W. Calhoun, Atlanta, Ga.; H. C. Eccles, Charlotte, N. C.; I. N. Love, St. Louis, Mo.; Herman Mynter, Buffalo, N. Y.; Robt. T. Morris, New York City; R. Matas, New Orleans, La.; S. Eliot, Washington, D. C.; Hugh Taylor and G. Ben Johnston, Richmond, Va.; A. Morse, Elsora, Iowa; Walter H. White, Boston; Hugh Hamilton, Harrisburg and Bedford Brown, Alexandria, Va.

PAN-AMERICAN MEDICAL CONGRESS TRANSPORTATION ARRANGEMENTS.—Dr. H. L. E. Johnson, to whom the arrangements for transportation were assigned by the International Executive Committee, has made his report which is now printing and will be circulated among the profession during the week. He has arranged for one-fare rate throughout Mexico and the United States except in the New England States and portions of Eastern territory. By single trip from New York city to Mexico and return direct the entire cost will be: Fare, $78.50; Pullman births round trip, $46; meals round trip, $32; total cost, $156.50. Living in Mexico $2.50 per day extra; intermediate points at proportional rates. A special train has been arranged for through the American Tourist Association with Wm. Campbell, manager, to leave Cincinnati on Tuesday, November 10, 9 A.M., via St. Louis and Eagle Pass, and make a twenty-one day tour from there through Mexico and return for $189; from Chicago and return, $190; from St. Louis and return, $183.55. This will include railroad fares, double births, meals in cars and hotels in Mexico and carriage hire and streetcar ride, steamer on Panuco River from Tampico and all necessary expenses of the trip. The Baltimore and Ohio scenic route has been selected to carry the delegates from the North and East to meet the special train at Cincinnati; 300 persons have already signified their intention to make the trip. An ocean route from New York by Ward lines has been arranged for, the total cost of which will be, including meals and stateroom, $78. Ten days required each way to make this trip. The individual trip by rail will take six days each way.

TRIBUTE TO DR. TONER.—The annual report of the Government Hospital for the Insane, makes the following allusion to the late Dr. Toner, President of the Board of Visitors, and includes the resolutions adopted at the time of his death: "It is gratifying to us to know of such good work done in the Toner building. How he who gave his name to that building would have rejoiced in it all, and yet the name comes to us now only to remind us of our loss. Dr. Joseph M. Toner has been taken from us. He had been so long an active member of the board, for so many years its president, that something seems wanting from this annual report without his genial presence and wise counsel in its preparation. There was nothing about St. Elizabeth or its inmates in which he did not feel a lively interest, and as the years went on, with his name on our hospital buildings and his pleasant face looking in so often upon us, to name Dr. Toner was to suggest St. Elizabeth. It leaves a void that will not soon be filled. He died suddenly at Cresson, where he had gone for a brief summer rest. He had gone in the full expectation of returning long before our annual meeting, and looking forward to it as to a coming home. He has found the home that his life had so well deserved, and contemplating the nobility of that life we find an inspiration to go on with the work here which lay so near to his heart."

Dental Inspectors for Schools.—We notice in the *Medical Mirror* that the Ontario Board of Health recently adopted the following resolution: "That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the Minister of Education."

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 2 to Oct. 16, 1896.

Major Henry McElderry, Surgeon, is relieved from duty at Ft. Robinson, Neb., on expiration of his present leave of absence, and is ordered to Ft. Leavenworth, Kan., for duty at that station, to relieve Major Calvin DeWitt, Surgeon U. S. A.

Capt. William P. Kendall, Asst. Surgeon U. S. A., is relieved from duty at Ft. Sam Houston, Texas, and ordered to Ft. Brown, Texas, for duty at that post, to relieve Major Peter J. A. Cleary, Surgeon U. S. A.

Major Calvin DeWitt, Surgeon, upon being relieved from duty at Ft. Leavenworth, Kan., is ordered to Ft. Monroe, Va., for duty at that station, to relieve Major Edward B. Moseley, Surgeon U. S. A.

Capt. Benjamin Munday, Asst. Surgeon, will, in addition to his present duties at Ft. Wayne, Mich., examine recruits enlisted at Detroit, Mich., and will furnish medical attendance at the recruiting station in that city.

Capt. William B. Davis, Asst. Surgeon, now Major and Surgeon, will be relieved from duty as attending surgeon and examiner of recruits in New York city, upon the expiration of the leave of absence granted him in S. O. 23, A. G. O., Sept. 30, 1896, instead of the conclusion of his examination for promotion, as heretofore ordered by Par. 4, S. O. 44, A. G. O., Sept. 4, 1896. By direction of the Secretary of War.

First Lieut. George D. DeShon, Asst. Surgeon, is granted leave of absence for four months, to take effect after he shall have reported for duty at Washington Bks., D. C.

Col. Charles H. Alden, Asst. Surgeon-General, and Major Calvin De Witt, Surgeon, are detailed as delegates to represent the Medical Department of the Army at the Second Pan-American Medical Congress, to be held in the City of Mexico, Nov. 16 to 19, 1896. By direction of the Secretary of War.

Capt. N. S. Jarvis, Asst. Surgeon U. S. A., granted six months' leave of absence with permission to go beyond sea.

Capt. Jefferson D. Poindexter, Asst. Surgeon, will be relieved from duty at Ft. Riley, Kan., and will report in person to the commanding officer, Willets Point, N. Y., for duty at that post.

Major Peter J. A. Cleary, Surgeon, upon being relieved from duty at Ft. Brown, Texas, by Capt. Kendall, Asst. Surgeon, will report in person to the commanding General, Dept. of Texas, for duty as chief surgeon of that Department.

PROMOTIONS.

Lieut.-Col. C. R. Greenleaf, Deputy Surgeon General, to be Asst. Surgeon-General, with rank of Colonel, Oct. 10, 1896, vice Town, retired.

Major William H. Gardner, Surgeon, to be Deputy Surgeon-General, with rank of Lieut.-Colonel, vice Greenleaf, promoted, to date Oct. 10, 1896.

Capt. William W. Gray, Asst. Surgeon, to be Surgeon, with rank of Major, Oct. 10, 1896, vice Gardner, promoted.

Capt. William B. Davis, Asst. Surgeon, to be Surgeon, with the rank of Major, Aug. 11, 1896, vice Worthington, deceased.

RETIREMENT.

Col. Francis L. Town, Asst. Surgeon-General, is at his own request having served over thirty years, retired from active service this date, Oct. 10, 1896.

Change of Address.

Blech, Gustav, from Detroit, Mich., to 728 17th St. N. W., Washington, D. C.

Davis, Geo. E., from Salviso to Lawrenceburg, Ky.

Hamilton, John B., from Rand McNally Building to 100 State St., Chicago, Ill.

De Hart, J. N., from Round Lake to 137 Keap St., Brooklyn, N. Y.

Goelet, A. H., from 350 W. 57th St. to 108 W. 73d St., New York, N. Y.

Gottschalk, F. B., from cor. Clark St. and Chicago Av. to 2030 N. Halsted St., Chicago, Ill.

Hall, Lemuel T., from 910 Vandeventer Av. to 4240 West Belle Place, St. Louis, Mo.

Isbester, R. T., from Chicago, Ill., to Salem, Iowa.

King, Chas. Lee, from Lamanda Park to Pasadena, Cal.

LETTERS RECEIVED.

Adamson, F. W., Milwaukee, Wis.; American Journal Publishing Co., St. Louis, Mo.

Battle & Co., St. Louis, Mo.; Beard, R. O., Minneapolis, Minn.; Bonney, S. G., Denver, Colo.; Bracken, H. M., Minneapolis, Minn.

Dewey, Rithard, Wauwatosa, Wis.

Holland, J. M., Philadelphia, Pa.; Hummel, A. L. Adv. Agency, New York, N. Y.

Johnson, J. W., Boston, Mass.

Lincoln, M. H., Philadelphia, Pa.

Macey, Fred Co., Grand Rapids, Mich.; Marks, A. A., New York, N. Y.; Merrick, M. B., Passaic, N. J.; Moore, W. S., Detroit, Mich.; Murphy, T. C., Manitou, Ill.; McNew, H. L., Honey Grove, Texas.

Open Court Pub. Co., Chicago, Ill.

Pasteur Vaccine Co., Chicago, Ill.; Peek, J. H., Hampton, Va.

Ransom, J. B., Dannemora, N. Y.; Robinson, R. E., Frederika, Iowa.

Schering & Glatz, New York, N. Y.; Stearns, F. & Co., Boston, Mass.; Sternberg, Geo. M., Washington, D. C.

Taylor, B. D., Ft. McPherson, Ga.; Tuley, Henry E., Louisville, Ky.